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TELEPHONE and Management ENGINEER

DECEMBER
1954

THE NATIONAL TELEPHONE MAGAZINE

Featuring in This Issue—

★ CAPITALIZE ON CRITICISM, by *Carroll H. Jones*
★ DESIGNING MODERN COMMUNICATION LINES, by *J. N. Petrie*
★ CONSTRUCTION OF LOCAL LINE PLANT IN ENGLAND, by *R. G. Tungate*
★ TOP MANAGEMENT REPORTS ★ INDUSTRY NEWS BRIEFS
★ QUESTIONS & ANSWERS ★ FRONT COVER STORY *(See Page 4)*

telephone directory advertising exclusively

L.M. BERRY AND COMPANY

Through the years . . . since 1910, more and more Telephone Companies have turned to L. M. Berry and Company to handle their Directory Advertising.

Year after year we have succeeded in producing *highly desirable revenue* in these directories and have increased *customer good will* among subscribers.

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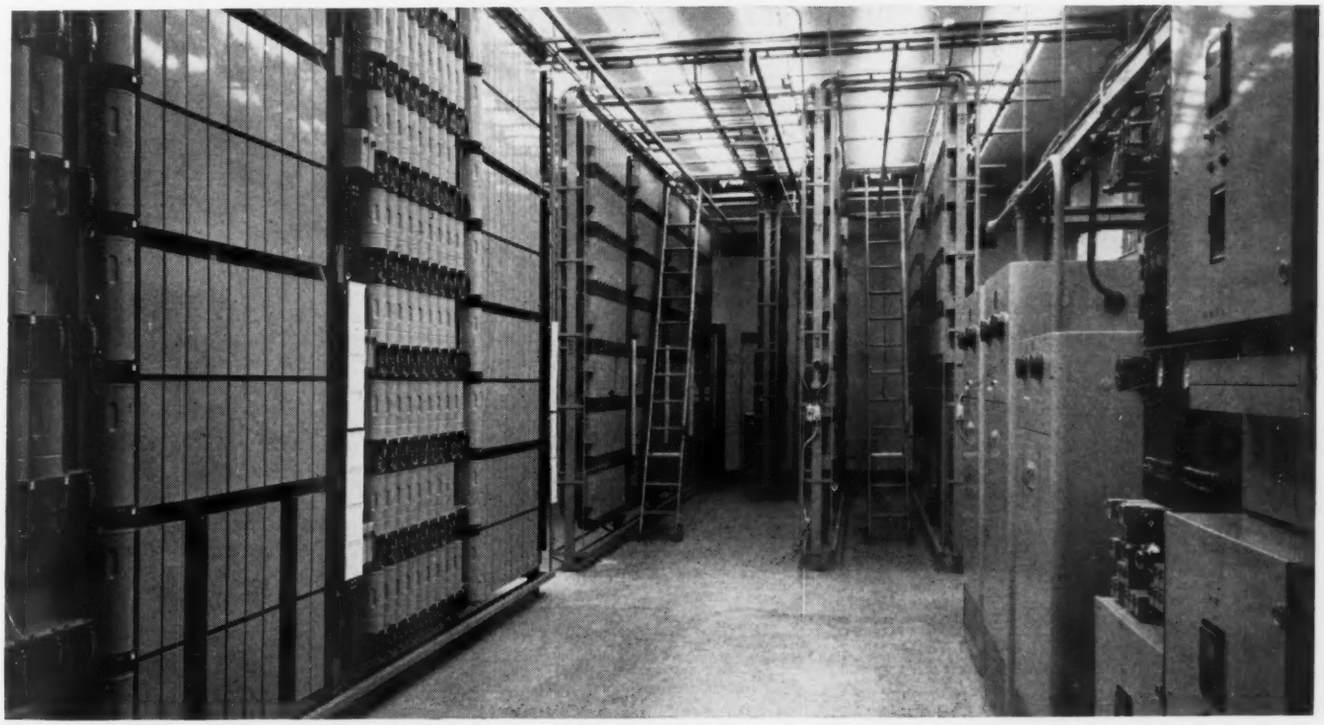
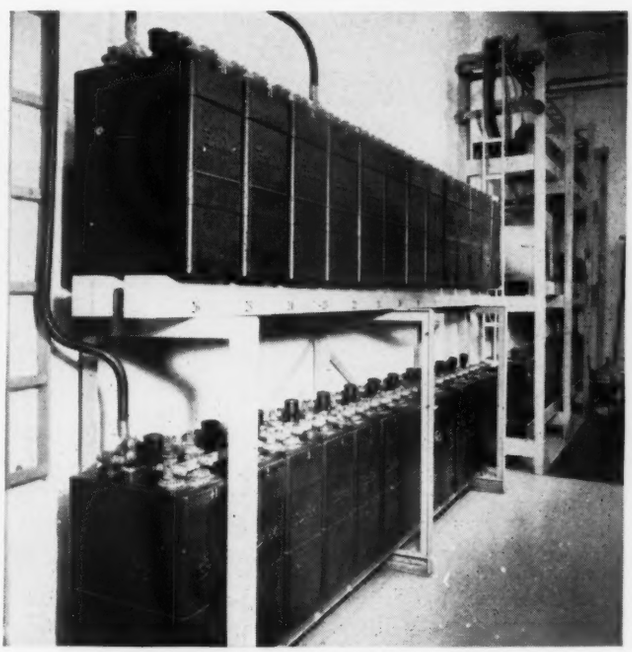
GUARANTEE OPERATION OF DIAL EQUIPMENT

. . . with dependable Exide telephone batteries!



THIS MODERN dial equipment installation was manufactured by the Automatic Electric Company for the Del Rio, Texas, exchange of the General Telephone Company of the Southwest. Exide telephone batteries were specified for the power plant. You will find that Exides are your *best buy in telephone batteries* with low costs for maintenance and depreciation. They are dependable, powerful and long lived.



DEPENDABLE standby power is provided by twenty-six FB-15D Exide batteries in monobloc rubber containers. Batteries are rated at 840 ampere hours, and are used for automatic full-float operation. Exide also makes Exide-Manchex and Exide-Tytex batteries, in sealed glass or plastic containers for every type of telephone service. Call your Exide sales engineer, write for details.

DEL RIO'S central office was converted to dial operation last year, and serves over 3,800 stations.

Your best battery buy...
FOR ALL TELEPHONE SERVICES Exide® **BATTERIES**

Exide INDUSTRIAL DIVISION, The Electric Storage Battery Company, Philadelphia 2, Pa.

A

Telephone Engineer

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TELEPHONE and Management ENGINEER

DECEMBER 1954
Vol. 58 No. 12

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FRONT COVER

Seventy-five persons registered at "Plant Clinic" in Seattle, Wash. Shown on our front cover are: Andrew J. Zimmerman, executive director, Washington Independent Telephone Association; Michael J. Murphy, general commercial agent, the Pacific Telephone & Telegraph Co.; Mrs. Ada J. Murphy, Washington Independent Telephone Association, receptionist; Guy L. Chilberg, general plant manager, the Pacific Telephone & Telegraph Co. For complete story — see Page 76.

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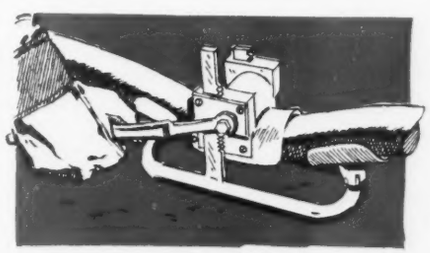
GraybaR TELEPHONE NEWS

FAST-MOVING ELECTRONIC BLOODHOUND SNIFFS OUT CABLE TROUBLE

Pulled along an aerial cable at 120 feet per minute, the General Machine Products B Leak Locator can "sniff" a gas leak of as little as 1/100 of a cubic foot per day. Freon gas is let into the cable sheath, replacing the nitrogen with which it is normally filled. Lineman then mounts "Sniffer" unit on the cable, together with its trailing control section and power supply. As it glides along the cable, blowers draw in air. If Freon is present, it actuates a bell and a milliammeter. The Locator is so speedy that it cuts the cost of leak detection to 1/3 that with other methods!



ASK GRAYBAR FOR COMPLETE GMPCO CATALOG...

Graybar distributes the complete line of GMPCO tools and accessories needed for fast efficient cable work – mandrels, duct cleaners, pickups, grapples, and feeders. But one of the biggest time savers is this GMPCO cable bender. Easy to use in restricted manholes, it makes compound bends in lead cable up to 3" without damage . . . multiplies 100 lbs. of handle pressure 20 times.

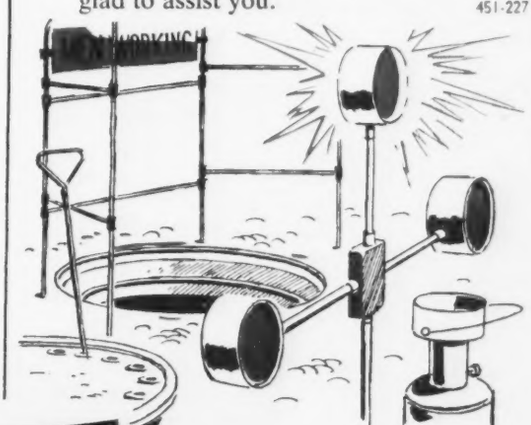
IT TAKES LESS "BEEF" WITH GREASE

Cables slide into conduits a lot more easily when they have been given a coat of GMPCO cable lubricant. The lubricant is available in 5-gallon cans in two types, one for lead-sheathed cable, the other for plastic-jacketed cables.

SAFETY FLASH

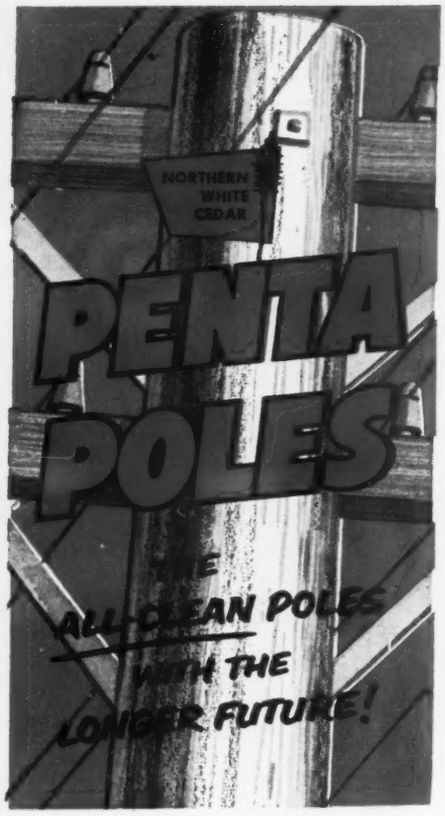
Minimize the hazard of open manholes with this GMPCO flashing signal and stand. Powered by a portable storage battery, this sturdy signal flashes a constant impossible-to-miss warning to pedestrians and vehicular traffic. For prices and information on this and any other telephone needs, call your local Graybar Representative – he will be glad to assist you.

451-227



Call Graybar first for...

GRAYBAR ELECTRIC CO., INC.
Executive Offices:
Graybar Building, New York 17, N. Y.
IN OVER 110 PRINCIPAL CITIES



Ask the lineman who installs them! He'll recommend P & H Northern White Cedar PENTA Poles . . . the poles that are safer, cleaner and easier to handle. Light weight Cedar plus top-to-butt PENTA treatment means poles that are always uniform, always dependable.

Before you buy . . .
Get the complete story!
WRITE FOR OUR FREE PAMPHLET
"Full-Length Treated Northern White Cedar P & H PENTA POLES,"
TODAY!

PAGE & HILL, INC.
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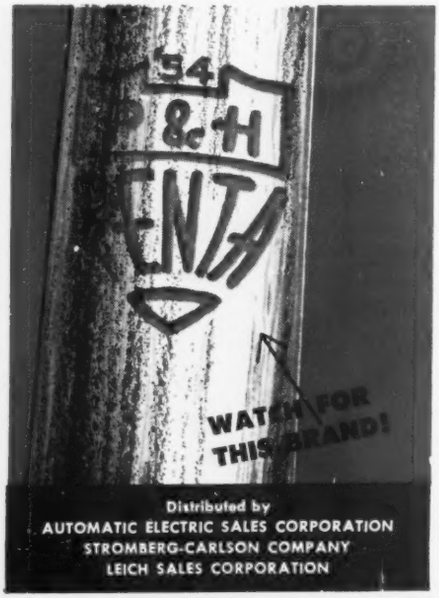

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—mostly about people

Across The Editor's Desk

CONGRATULATIONS to *W. F. (Bill) Corman* on his election to the presidency of the *Alabama-Mississippi Telephone Association.* Their convention was held at Birmingham during November and the writer enjoyed the honor of appearing on their program. Bill is manager of the *Southland Telephone Co., Atmore, Ala.,* and for the past few years has served as secretary of the association he now heads. In his spare time Bill also edits the feature "Small Company Talk" that appears exclusively in the TELEPHONE ENGINEER publications.

JO POPPLETON, popular secretary of the *Florida Telephone Association* is also to be congratulated on the excellent program she and the committee prepared for the Florida convention at St. Petersburg. We are indebted too, personally, for the warm hospitality offered by telephone folks from the *Peninsular Telephone Co., Tampa.* The *Carl Broreins, Sr.* and *Jr., Dave Kafka* and *Walter Brown* hosted a party of out of state convention visitors for an after-convention get together at Homosassa. Even the fish co-operated to make the party one long to be remembered. Pictures were taken but as yet we have not committed ourselves on publishing them!

THE GEORGIA Telephone Association held its meeting at beautiful Augusta in November and many of the out-of-state visitors, including manufacturers and suppliers, made all of these three conventions that rung down the 1954 curtain for state telephone annual meetings. The three associations mentioned in these paragraphs have increased in size and importance during the past years and the Georgia group has shown remarkable growth and work for its members.

Mrs. Helen Stewart

ANOTHER HONOR came to *Mrs. Helen Stewart* of *Cornelia, Ga.* during November when she was chosen to speak at the *Virginia Chamber of Commerce Executives' Association* held at Natural Bridge on November 9 and 10. *Helen,* wife of *Milton Stewart* who operates the *Standard Telephone Co.* with headquarters at *Cornelia,* also serves as secretary of the Chamber of Commerce there. Our readers are familiar with her activities as we have heralded them for many years.

Mrs. Ellen Neale

ELLEN NEALE, one of the few successful lady manufacturing executives in our industry, exhibited products of the *Cable Spinning Equipment Co.* at all of the Southeastern conventions. *Mrs. Mayme Workman,* executive secretary of the *Independent Telephone Pioneer Association* was *Ellen's* guest on their long motor trip and appeared on many of the programs at the telephone conventions visited. It was *Mayme's* first trip to all of these meetings and she was loud in her praise of the associations and their activities. *Ellen* did not return to Topeka after the Florida meeting but took advantage of the locale for a short vacation with her husband *Dory Neale* of the *Neale Construction Co., Topeka.*

"Success Story"

OUR MOST enjoyable reading of the month was the article "Success Story — Grade A" by *Frank G. LaPrade,* general manager of the *Lee Telephone Co., Martinsville, Va.,* that appeared in the October issue of VIRGINIA AND THE VIRGINIA RECORD. The story was an honor to *B. L. Fisher,* founder and president of the Lee Telephone Co. and well known in Independent circles nationally. Mr. Fisher is one of the beloved gentlemen of our industry and his story is one that would serve as a model for the new generation of Independent telephone people.

Merry Christmas

THE ENTIRE Staff of the *Telephone Engineer* publications join with me in wishing our readers and friends all the *Joys* of a *Happy Holiday Season.*

Now-Lenkurt Microwave,

the *Weatherproof* Toll Line

You can forget the weather when you install Lenkurt Microwave! When properly installed, it gives you dependable toll circuits through sleet and snow, wind and rain. It's the *weatherproof toll line!*

Lenkurt Microwave is quick, simple, easy to install! We give you a completely engineered "package," consisting of channelizing equipment, radio equipment, supervisory equipment, and control equipment — *all guaranteed to function together perfectly.* What's more, we give you full instructions written in telephone man's language, and drawings prepared in telephone style. Lenkurt Microwave has been used to provide a few as five channels over distances as short as 13½ miles. The overall (initial plus operating) cost of Lenkurt Microwave can be lower than outside plant facilities of equal capacity. Experience has proved it so, in installations throughout the country.

Have you an unusual toll circuit problem? Automatic can provide the best solution! Write today about our switchboard-to-switchboard microwave engineering service. Ask for Bulletins T72AP16, T72B900P4, and T45BXP4. *Write Automatic Electric Sales Corporation, 1033 W. Van Buren St., Chicago 7.*

Manufactured for

AUTOMATIC ELECTRIC

AUTOMATIC ELECTRIC—LEADERS IN CARRIER COMMUNICATIONS—**LENKURT**

Stranterm

The only cable terminal with "PUSH BUTTON" PROTECTION*

Stranterm is also the only cable terminal which is supplied with either plastic or lead sheathed cable stubs.

All terminals are supplied with 3½ foot, 24 gauge cable stubs, which are soldered to heavy Everdur studs imbedded in a special unsaturated Polyester thermal setting plastic with fibre-glass filler, which provides indestructible, moisture-proof, gas tight potting of the terminal core.

Additional flexibility is provided in that the 11 and 16 pair cable stub and core are interchangeable in the standard terminal housing. Left and right hand cable entrance to the terminal box is also possible. These alternate arrangements are accomplished by the removal and reinserting of one screw.

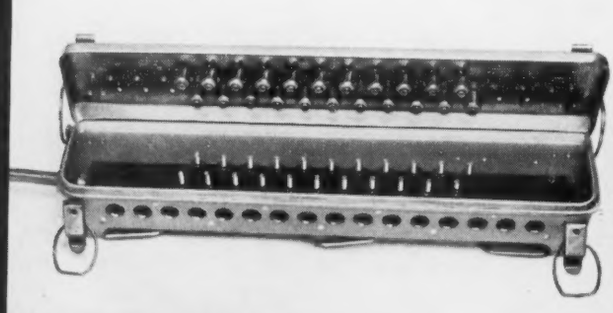
Drop wires are dressed and supported by means of three heavy stainless steel wire rings.

The quick opening cover lock and weatherproof cover design, coupled with the embossed Minigap snap-in sockets, spring bronze ground strip, and the neoprene self adhering drop wire entrance seal, evidence the result of Cook Research and Development as applied to telephone apparatus.

Stranterm also features an ingenious bell shaped cable nozzle which eliminates cable breakage due to excessive right angle bends.

We suggest that you order a sample Stranterm today and investigate the economies and improvements now made possible in your outside plant construction.

*The Stranterm is the only Strand Mounted Terminal which permits the installer to apply protection to the pairs requiring dischargers, or to install the same terminal unprotected as determined by the outside plant engineers.



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ACTUAL SIZE

COOK ELECTRIC Company

2700 SOUTHPORT AVENUE CHICAGO 14, ILLINOIS

NEWSLETTER
TELEPHONE ENGINEER

Fortnightly TELEPHONE ENGINEER ★ TELEPHONE ENGINEER AND *Management*

ON THE 1st OF EACH MONTH ON THE 15th OF EACH MONTH

Dear Sir: Dec. 15, 1954

NUMBER OF TELEPHONES REACHED 51,900,000 AT 1954'S THREE-QUARTER MARK:- At end of Sept., about 70% of the 46,600,000 households in the United States had telephone service, according to the latest summary of telephone statistics released last month by the American Tel. & Tel. Co. Number of telephones in service in the country at the three-quarter mark of 1954 was 51,900,000, including 42,635,000 operated by the Bell System companies and another 1,361,000 by the non-controlled Southern New England and Cincinnati & Suburban Bell Tel. Cos.

There was $15,700,000,000 invested in plant at the end of Sept. and by that time operating revenues for the year had totaled $3,970,000,000, Bell System expenditures for first 9 months included $1,028,125,000 for new construction, and $3,086,390,000 for operating expenses, including taxes of $655,523,000.

INDEPENDENT EXCHANGES SELECTED FOR LINE HAUL PRORATE STUDY: – About 350 Independent telephone company exchanges, selected at random & considered to be representative by size of exchange & circuit groups, have been selected by US Independent Tel. Association Toll Compensation & Settlements Committee for a study of line haul prorates, it was reported last month.

A subcommittee set up for the purpose has completed development of procedures & forms, working with representatives of Bell System. Copies of material were forwarded to participating companies last month, & a target date of March 15 has been set for completion of the studies.

In another field of USITA activity, member companies having dial exchanges in which a neighboring company provides information, intercept, and other auxiliary operator services have been urged to cooperate in a review of the control office guide contract recommended in 1947. F. E. Norris, General Telephone Corp. vice pres., is chairman of the recently-recreated Dial Interexchange Committee, which is carrying on the survey.

TWO BELL COMPANIES SELL FACILITIES TO INDEPENDENT CONCERNS: – 2 Bell System companies last month were given FCC authority to sell facilities to Independent telephone companies at points where it was determined that the Independents could render service more economically & that future development would fit better into their plant & territories. New England Tel. & Tel. Co. is selling facilities in area of Anson, Me., to Somerset Tel. Co., while Pacific Tel. & Tel. Co. is disposing of its South Prairie, Wash., property to Orting Tel. Co. 129 customers involved at Anson, & 66 subscribers at South Prairie.

COLORADO COMMISSIONER HAWLEY APPOINTED CHAIRMAN OF REGULATORY BODY:- Colorado Public Utilities Commissioner Joseph W. Hawley has been appointed chairman of the agency, succeeding former Chairman John H. Win-

chell, who was appointed to Interstate Commerce Commission by President Eisenhower. John P. Thompson was named member of commission to fill Mr. Winchell's vacancy.

SALES & PURCHASES: – Howard K. Culbertson purchased Sterling (Kans.) Tel. Co. . . . Rodeo Tel. Membership Assoc., Taylor, Neb., plans purchase of Garfield Mutual Tel. Co., & Nebraska Continental Tel. Co., both of Burwell, Neb., & Farmers Tel. Co., Taylor, Neb. . . . Associated Tel. Co., Inc., & Midwest Tel. Co., both of Petersburg, Ind., plan merger.

PEOPLE IN THE NEWS:–Everett Paugh appointed gen. mgr. of Morrison (Ill.) Tel. Co. . . . . Frank Solberg named mgr. United Tel. Mutual Aid. Corp., Langdon, N. D. Under agreement with United, Mr. Solberg will continue in his present position as Dist. mgr. North Dakota Tel. Co.

EXPANSIONS & IMPROVEMENTS:–Medrick (Ia.) Tel. Co. completed cutover of its new $80,000 dial system . . . . Brooklyn (Ia.) Tel. Co. moved into its new $20,000 building . . . . Thermal Belt Tel. Co. converted its Landrum, La. exchange to dial.

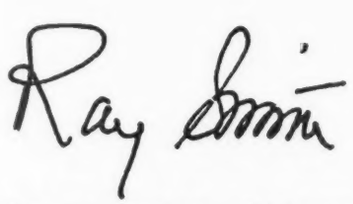
FCC ACTION ON NEW SEPARATIONS PLAN NOT SEEN FOR SOME TIME: – FCC action on the new "Modified Phoenix Plan" of telephone separations (FORTNIGHTLY TELEPHONE ENGINEER, Dec. 1) will not be forthcoming for at least several months, & could well be delayed until much of 1955 has gone by, informed sources indicated last month.

Contributing to the anticipated long period before FCC approves or rejects request of National Association of Railroad & Utilities Commissioners (NARUC) that it approve plan are several factors, it was pointed out.

One is, complexity of telephone separations, requiring considerable study by the FCC members. Another is unsettled situation regarding FCC membership, with nomination of Chairman George C. McConnaughey still awaiting confirmation.

In meantime, responsible sources urged that individual state commissions not go ahead & apply separations procedures unilaterally in intrastate telephone rate cases, a point emphasized by Special Telephone Committee Chairman Spencer B. Eddy in his report to the NARUC convention.

LITERATURE: – Complete line of Germanium Diodes & Germanium Transistors is described in Bulletin No. G-23, a comprenhensive new, 8-page catalog just issued by Seleton & Germanium Division, Radio Receptor Co., Inc. New catalog will be valuable tool for all engineers working with electronic circuits. It is available upon request to Sales Department, 251 West 19th St., New York 11 . . . Complete information on "Automatic Toll Time Calculating & Recording" available in handy file folder. Write Calculagraph Co., Dept. TEM, Harrison, N. J.



Ray W. Smith, Editor

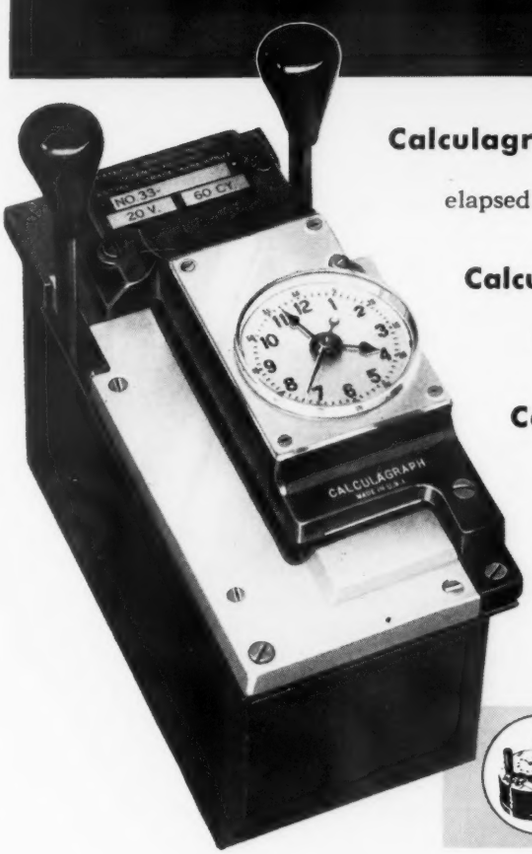
Spotlighting toll service—

CALCULAGRAPH

...speeds toll service

...protects toll revenues

Photo courtesy of
Kellogg Switchboard and Supply Company



Calculagraph automatically figures toll time – Eliminate time-consuming, service-slowing manual figuring of elapsed time on toll calls. Calculagraph is quicker, easier, completely accurate. There is no possibility of clerical errors.

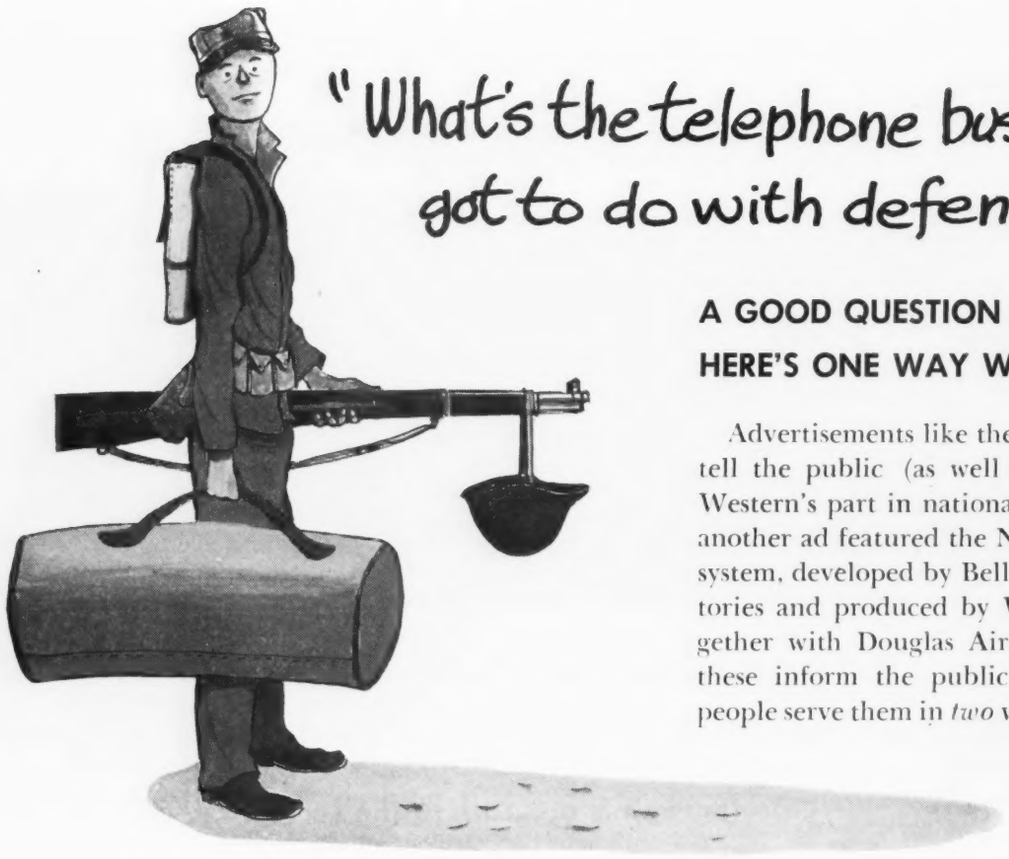
Calculagraph is accurate to the second – Precision calculations by Calculagraph are accurate down to the last second... make it possible to collect all the revenue due on every toll call. Calculagraph records are indisputable.

Calculagraph prints permanent toll records – Elapsed time records printed on permanent toll tickets make accounting methods simpler, more efficient. Tickets are easier to read, permanently legible, available for reference at any time.

AUTOMATIC TOLL TIME CALCULATING AND RECORDING PAYS! Complete information is contained in the Calculagraph Bulletins available in a handy file folder. Write for your copy to Dept. TE.

CALCULAGRAPH COMPANY
HARRISON • NEW JERSEY

THE STANDARD OF ACCURACY . . . SINCE 1892



"What's the telephone business got to do with defense?"

A GOOD QUESTION . . .
HERE'S ONE WAY WE ANSWER IT

Advertisements like the one across the page tell the public (as well as G.I. Joe) about Western's part in national defense. Recently, another ad featured the NIKE guided missile system, developed by Bell Telephone Laboratories and produced by Western Electric together with Douglas Aircraft. Messages like these inform the public of how telephone people serve them in *two* ways.

JET BOMBERS WON'T WAIT for you to aim your guns — you've got to do it with mechanical hands and electronic brains. Those 120 mm. muzzles must swing smoothly ahead of targets that are racing through space, must guide shells unerringly to points in the sky where invaders will be.

How is it done? By the M-33 fire-control system produced by Western Electric for the Army, a system based upon radars and electronic computers.

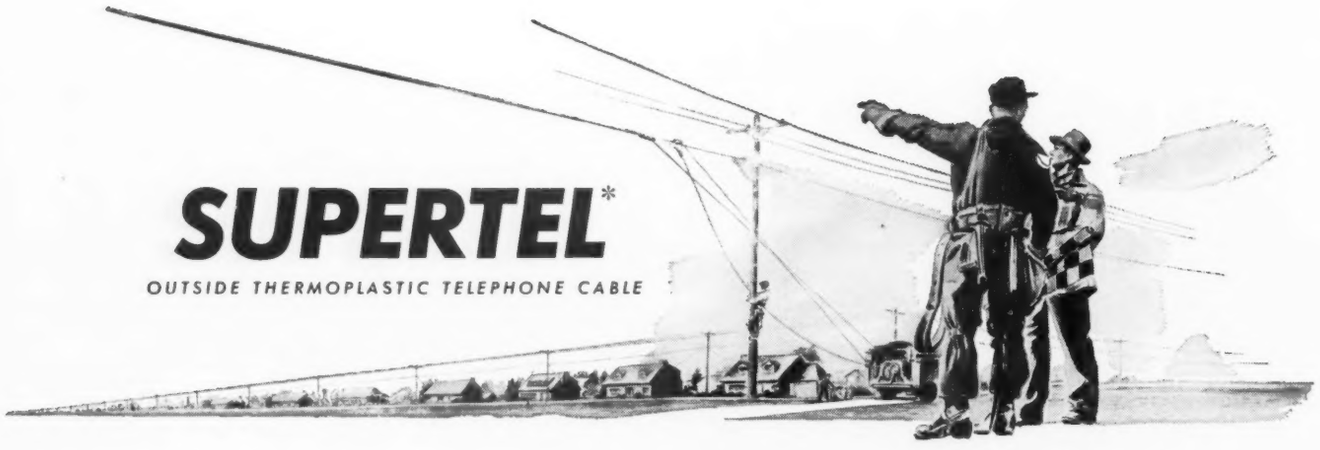
Many of the M-33's basic principles are the same as those used to guide your dial telephone call to the right number — and Western Electric makes dial telephone systems, too. That's why, with 72 years of experience as manufacturing unit of the Bell System, we have the highly specialized skills needed to produce electronic equipment, such as M-33, for national defense.

At the same time we are doing work of this kind for the Armed Forces, we are also going full speed ahead with our regular job — making telephone equipment to help keep Bell System service going and growing.

Western Electric

MANUFACTURING AND SUPPLY UNIT OF THE BELL SYSTEM

THE GREATEST NAME IN ELECTRICAL WIRE AND CABLE



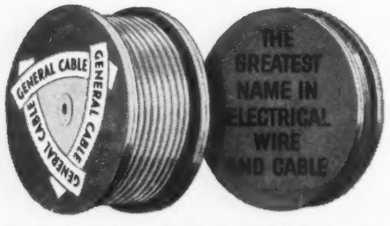
SUPERTEL*

OUTSIDE THERMOPLASTIC TELEPHONE CABLE

UNSURPASSED RELIABILITY

The smoother, more uniform and tougher outer jacket of SUPERTEL assures resistance to abrasion and bending as well as the deteriorating effects of sunlight, moisture, chemicals, high summer temperatures, flame and oils!

SUPERTEL combines light weight (for easy, economical installation) with the excellent transmission qualities that result from polyethylene insulation. Available in 19, 22 and 24 A.W.G., and up to 404 pairs in concentric and unit construction. Star quad, quads and composites are also available. New Brochure gives complete facts fast! Write today!



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Is Her Name "Miss Advertising?"

Your directory advertising may be out of step, if the size of your directory fails to reflect the growth of your service area. More and more managers report that directory advertising can be built to the point of being an important source of increased revenue. You are invited to find out how to increase your directory advertising and receive public relations benefits. There's no obligation on your part. Just call Loomis.

KNOW-HOW TO SOLVE YOUR DIRECTORY PROBLEMS

"Where to Call"

• 666 cities and towns in 20 states are served by the 234 directories that retain Loomis services.

LOOMIS
ADVERTISING COMPANY

FT. WAYNE, IND.
229 E. Berry St.... EAstbrook 3477

ST. LOUIS, MO.
506 Olive... GArfield 3700

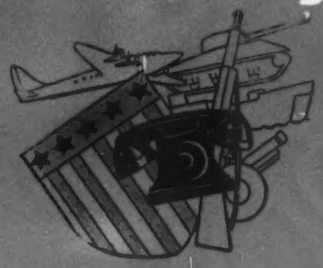
OMAHA, NEBR.
Omaha Nat'l Bank Bldg.... ATlantic 0188

KANSAS CITY, MO.
810 Baltimore... HArrison 1270

PHILADELPHIA, PA.
1201 Chestnut... Rittenhouse 6-4440

BALTIMORE, MD.
1229 North Charles... Vernon 7-0642

Industry NEWS Briefs



This is your department. The editor wants news regarding your company. Send news items and photographs to News Briefs' Editor, 7720 N. Sheridan Rd., Chicago 26, Ill.

General of Wisconsin Names Three to New Posts

ORGANIZATIONAL changes made by General Telephone Co. of Wisconsin last month resulted in the promotion of Herman P. Siebken, Richard A. Schultz and Arthur W. Raffill to new executive posts.

Mr. Siebken, who has been associated with General of Wisconsin for 31 years, became operating vice president, a newly created executive position in the company. Prior to his appointment, he was vice president, chief engineer and general plant manager. Mr. Siebken is a graduate of the University of Wisconsin and holds a degree in Mechanical Engineering.

Mr. Schultz has been named chief engineer. A graduate of Kansas State College where he received a degree in Electrical Engineering, Mr. Schultz has been with the General company since February 1, 1936. He formerly served as assistant chief engineer and was promoted to that position in December, 1952.

Mr. Raffill, who has been associated with the company since 1937 and has served in various capacities including district plant supervisor and general plant superintendent, has assumed the duties of general plant manager. Mr. Raffill is a graduate of the University of Wisconsin and holds a degree in Electrical Engineering.

Laurelville, Ohio Goes Automatic

CUTOVER OF THE Laurelville, Ohio, exchange from magneto to automatic operation on September 8, 1954, marked the completion of another conversion project in the Ohio Consolidated Telephone Co.'s $1,750,000 construction program.

LAURELVILLE, OHIO: — Mayor A. F. Goodman, Laurelville, Ohio, placed first call over town's automatic system.

A new central office building was erected to house the 200 lines of CAX equipment to serve approximately 400 residents of the Village of Laurelville and surrounding rural area.

The Honorable A. F. Goodman, mayor, signaled the cutover by placing the first call over the automatic system.

Among the many guests present for the cutover ceremony was Bert Poling, former combinationman at Laurelville, who retired March 1, 1947, after 44 years of service with Ohio Consolidated Telephone Co. and its predecessor, The Citizens Telephone Co. It was a special plea-

LAST CALL OVER OLD BOARD: — BERT POLLING, former combinationman at Laurelville, Ohio, who retired March 1, 1947, after 44 years service with Ohio Consolidated Tel. Co. and its predecessor, handles last call over magneto switchboard. Laurelville exchange was cutover to automatic operation on Sept. 8.

A Direct Line to

longer life...
lower cost...
less maintenance...

ANSONIA
Ankoseal®
THE ALL-PLASTIC CABLE

Using Ankoseal is a short-cut to greater satisfaction with your cable installations because it reduces the installed cost and minimizes service interruptions and heavier maintenance that prevailed before Ankoseal was introduced as the "first" plastic insulated cable.

TAKE THE DIRECT LINE BY SPECIFYING ANKOSEAL

Ankoseal Telephone Cables are sold to Independent telephone companies through Ankoseal Telephone Supply Distributors only.

Ankoseal also is—

CHEMICAL RESISTANT • WEATHERPROOF • LIGHTER WEIGHT
ELECTRICALLY SUPERIOR • WATERPROOF

THE ANSONIA
WIRE & CABLE COMPANY
ANSONIA, CONNECTICUT • PHONE: REGENT 4-3306

At Southeast Nebraska Telephone Company

It's C&D Batteries for EXTRA life

New C&D Battery installation at Falls City, Nebraska. The Southeast Nebraska Telephone Company has a string of C&D PlastiCal (lead-calcium) cells here—capacity 540 A. H.

Just installed—but with a long, long life ahead—are these C&D PlastiCal Batteries for The Southeast Nebraska Telephone Company. Their job: to provide dependable, round-the-clock service for the busy Falls City area, an important town in the great Cornhusker State.

Like many telephone properties, Southeast Nebraska depends on C&D for reliability. The next time you order batteries, specify C&D. For with C&D you get:

1. **One-piece, permanently-sealed plastic case. Entire unit is shock-resistant... lighter and more compact than glass or rubber.**
2. **Elimination of sudden leaks due to internal stresses.**
3. **Easier maintenance, because patented Post Seal eliminates acid creepage.**
4. **Lower shipping costs. Light plastic case reduces total in-place cost.**

For C&D Batteries—consult your Equipment Supplier.

For details and specifications — write for Bulletins T-527 and T-528.

C&D

BATTERIES, INC.
of Conshohocken, Pa.
Manufacturers of Industrial Batteries since 1906

SALES AND SERVICE OFFICES IN PRINCIPAL CITIES FROM COAST TO COAST

sure for Mr. Poling, after his years of retirement, to efficiently handle the last call placed over the magneto switchboard, inasmuch as he had had the "thrill" of accepting the first call over the magneto board when it was installed at Laurelville during his period of employment. Mr. Poling was pleased to witness the progress of "his central office" when it was cut over from magneto to automatic operation.

Long distance calls to and from Laurelville exchange subscribers are now handled in the company's district office at Circleville, located approximately 16 miles northwest of Laurelville.

E. B. Jury is district manager of the Circleville District which, in addition to the Laurelville exchange, includes offices in the towns of Circleville, Ashville, Baltimore, Millersport, Pleasantville and Williamsport.

The Leesburg, New Bremen and Williamsport Exchanges of the Ohio Consolidated Telephone Company are also scheduled for conversion to automatic operation before the close of 1954.

William Brooks Joins General of Indiana

H. E. Hussey, president of General Telephone Co. of Indiana, Inc., has announced the appointment of William Brooks, as Public Relations Director. This is a newly created position for General of Indiana.

Prior to his new appointment Mr. Brooks had been night editor of the *Frankfort Morning Times.* As Public Relations Director Mr. Brooks will assume all responsibilities for the overall company public relations program. Mr. Brooks will report to Mr. Hussey.

Colonel Thames Named To Signal Corps Post

Colonel W. Mack Thames has been appointed chief of the Signal Plans and Operations Division in the Office of the Chief Signal Officer, U. S. Army, Washington, D. C., succeeding Brigadier General Reginald P. Lyman, who has retired.

Colonel Thames had been serving as assistant chief of the Engineer and Technical Division in the Office of the Chief Signal Officer prior to taking over his new assignment.

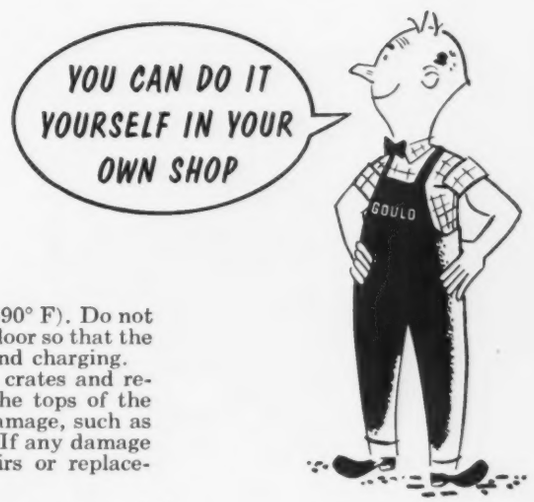
A veteran of both World War II and the Korean outbreak, Colonel

HERE'S MONEY SAVING TIP #3

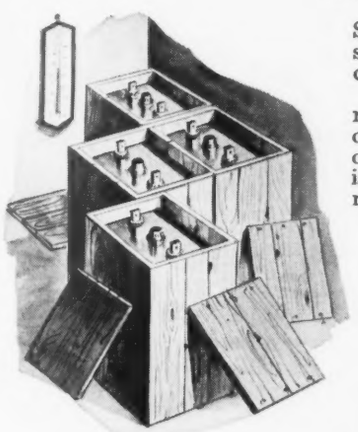
from the GOULD Plus-Performance Plan

HOW TO STORE A WET BATTERY

Frequently it becomes necessary to store batteries for an extended period of time before they are placed in service. To be sure that the batteries are maintained in the best possible condition during this storage period, the Gould Plus Performance Plan shows you how to do it yourself.



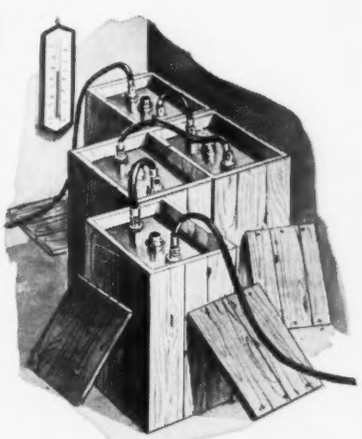
1. Open and Inspect



Select a cool, dry room for storing (60°-90° F). Do not stack the crates, but have them on the floor so that the cells will be accessible for inspection and charging.

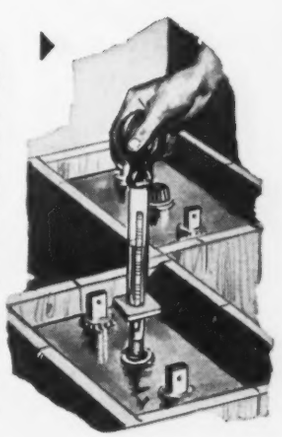
Remove the tops from the shipping crates and remove packing material from around the tops of the cells. Examine the cells for shipping damage, such as cracked jars, spillage or other damage. If any damage is apparent, have the necessary repairs or replacements made at once.

2. Connect in Series



Connect the cells in series, negative to positive and then connect to some DC source of power where a low rate of charge can be obtained. Connect the positive terminal to the positive lead of the charging source and the negative terminal to the negative lead of the charging source.

3. Check Specific Gravity



Every thirty days take hydrometer readings of several cells. If any cell reads as low as 1.200 specific gravity, charge at the recommended finishing rate until a constant voltage and specific gravity are obtained for 4 readings taken at hourly intervals. These readings should be taken while the cells are on charge. In the event the charging equipment available does not have sufficient voltage to charge the entire battery at once, the battery may be split up into smaller units and each unit charged separately.

GOULD Batteries

GOULD-NATIONAL BATTERIES, INC.
TRENTON 7, N. J.

For Railroad Air Conditioning and Lighting | For Mine Shuttle Cars and Locomotives | For Electric Industrial Trucks | For Diesel Locomotive Starting | For Standby and Emergency Power

©1954 Gould-National Batteries, Inc.

Always Use Gould-National Automobile and Truck Batteries

There are many ways in which you can cut battery maintenance costs. Doing simple jobs like this, in your own plant, is the answer. The Gould Plus-Performance Plan gives you the "know-how" to "do it yourself." Send for the complete plan and start saving money. Mail this coupon TODAY!

BATTERY INFORMATION HEADQUARTERS
Dept. TE-124 Trenton 7, N. J.

Please send me, without charge or obligation, the Gould Plus-Performance Plan for _____ batteries.
(type or types)

Name _____

Firm _____

Address _____

City _____ Zone _____ State _____

Thames has the distinction of being the first to organize an air lift of ground troops at the beginning of hostilities in Korea.

Colonel Thames entered the Army in February 1941 as signal officer for Camp Blanding, Fla. In November, 1942, he became submarine cable engineer with the Alaska Communication System. From December, 1943 until August, 1945, he served first as assistant Signal Officer for the 4th, and later the 9th U. S. Armies.

COLONEL THAMES

In September, 1945, Colonel Thames was made assistant director of engineering at the Signal Corps Engineering Laboratory at Fort Monmouth, N. J., and served in this capacity until October, 1946 when he became commanding officer of the Signal Corps Plant Engineering Agency with headquarters in Washington, D. C.

In June, 1948, he became a student at the Command and General Staff College at Fort Leavenworth, Kans.

Upon completion of his studies at Fort Leavenworth, Colonel Thames was made Deputy Signal Officer, Far East Command, Tokyo. He served in this post until July, 1951 when he returned to this country to attend the Army War College, Carlisle Barracks, Pa. Completing his course of study at the Army War College in June, 1952, Colonel Thames was assigned assistant chief of the E & T Division, Office of the Chief Signal Officer.

During his military career, Colonel Thames has participated in combat in all theatres which have been recognized by the Department of Defense. He has been awarded the Legion of Merit, the Bronze Star Medal and the Army Commendation Ribbon.

Although a native of Roanoke, Va., Colonel Thames spent most of his life in Jacksonville, Fla., prior to entering the Army in World War II.

He attended Duval and Andrew Jackson High Schools in Jacksonville and made an outstanding record both scholastically and in high school athletics. Later he attended Clemson Agricultural and Mechanical College, Clemson, S. C., and continued to distinguish himself as a student and athlete. He received a Bachelor of Science degree in Electrical Engineering from Clemson in 1932.

After graduation from college, Colonel Thames became associated with the Southern Bell Telephone & Telegraph Co. at Gainesville, Fla. He was transferred in 1935 to New Orleans, La., as a transmission engineer and later became Louisiana Division Construction Supervisor, a position he held until 1941 when he was called to active duty.

Colonel Thames is married to the former Miss Bernice Self of Sarasota, Fla. They have a daughter, Nena Louise, 15; a son, William M. III, 4; and a son, Robert E., 2. Colonel and Mrs. Thames currently reside at 6021 N. 23rd St., Arlington, Va.

West Coast Tel. Adopts New Directory Idea

TELEPHONE directories published recently by the West Coast Telephone Co., Everett, Wash., contain an innovation. The standard lists of "Rates to Out-of-Town Points" have been eliminated in favor of maps which convey the essential information at a glance. Instead of long columns of place names with long distance rates set up in small type, there are skeleton maps of the United States, showing the night rates applicable to a few near-by, middle distance and far off points, set up so that anyone can quickly gain a rough idea of the cost of the call he proposes to place.

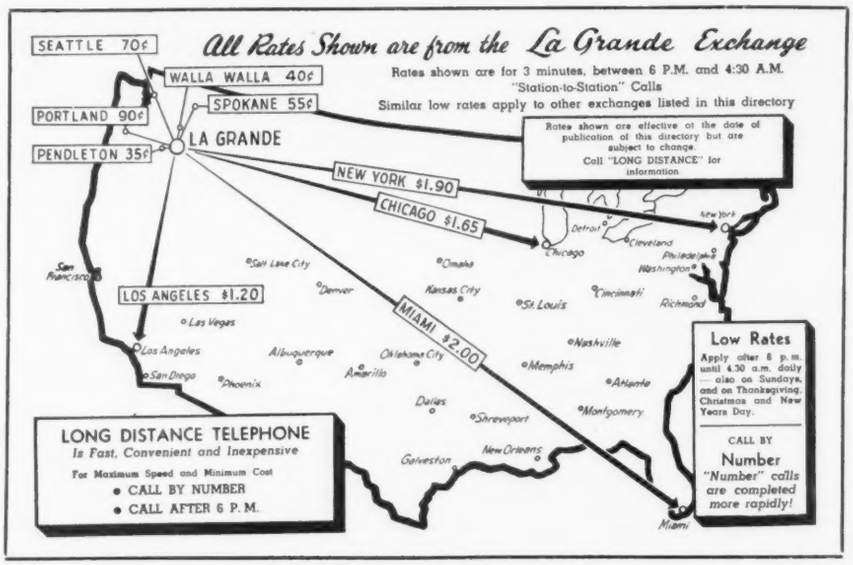
A typical example of a West Coast Telephone Company directory long distance map is shown on this page. It was used in the directory for La Grande, Ore., published by the company in November.

"Our thought about it," said L. A. Gritten, sales and directory supervisor for West Coast, "is that most people dislike poring through lists of names in small print. If John Doe wishes to know what it will cost him to telephone from La Grande to some point in Ohio, for example, a glance at the map tells him that a 3-minute station call will cost him something between the $1.65 rate to Chicago and the $1.90 rate to New York.

"That is all he wants to know. Precise accuracy would not please him as much as the ability to get the essential idea fast and easily.

"When we publish a mass of information in small print and hopefully expect our public to read it, we disregard one important fact: More than 25% of Americans who are old enough to read are over 50 years of age, definitely in the "bifocal blink" category. It is bad enough to inflict 6-point or 7-point subscribers' listings upon them; that cannot be

Please Turn To Page 24


All Rates Shown are from the La Grande Exchange
Rates shown are for 3 minutes, between 6 P.M. and 4:30 A.M.
"Station-to-Station" Calls
Similar low rates apply to other exchanges listed in this directory
SEATTLE 70¢
WALLA WALLA 40¢
SPOKANE 55¢
PORTLAND 90¢
PENDLETON 35¢
LA GRANDE
Rates shown are effective at the date of publication of this directory but are subject to change.
Call "LONG DISTANCE" for information.
NEW YORK $1.90
CHICAGO $1.65
LOS ANGELES $1.20
MIAMI $2.00
Low Rates
Apply after 6 p.m. until 4:30 a.m. daily — also on Sundays, and on Thanksgiving, Christmas and New Years Day.
CALL BY Number
"Number" calls are completed more rapidly!
LONG DISTANCE TELEPHONE
Is Fast, Convenient and Inexpensive
For Maximum Speed and Minimum Cost
• CALL BY NUMBER
• CALL AFTER 6 P.M.

West Coast Tel. Co.'s long distance map.

It's getting *More Popular* every day . . .

Copperweld
TRADE MARK

O-Eighty-Thirty

DIAMETER .080"-30% CONDUCTIVITY

TELEPHONE LINE WIRE

The Perfect Conductor
For Rural Lines

Here's Why . . .

- Costs less to install
- Costs less to maintain
- Costs less over the years
- Lasts longer—won't rust
- Permits safer long spans
- Requires fewer poles and accessories
- Copperweld "Talks Better" than any other high-strength conductor

More and more telephone companies are switching to Copperweld* O-Eighty-Thirty for their rural lines. You, too, can get all these advantages by installing O-Eighty-Thirty. And remember, Copperweld is ideal for both voice and carrier circuits. Write us today for prices, sag data and staking tables.

*Trade Mark

Order No. 1012
GRIP-FLEX

INSULATOR TIES
for O-Eighty-Thirty

SOLD BY ALL LEADING DISTRIBUTORS

COPPERWELD STEEL COMPANY
WIRE AND CABLE DIVISION
Glassport, Pa.
For Export: COPPERWELD STEEL INTERNATIONAL COMPANY, New York

Toward all men
good will

NORTH

THE NORTH ELECTRIC MANUFACTURING CO.

Galion, Ohio.

ALPHADUCT DROP WIRE carton packaging

Once you start using Alphaduct Drop Wire you will find out that the handy carton packaging has real dollars and cents advantages.

Not only does your wire arrive in perfect condition, but the sturdy carton protects it all the while it's in your warehouse.

The cartons are easier to handle than loose coils. They can be stacked higher without danger of falling and the wire on the bottom will not be crushed or bent. Space is saved, inventory taking is simplified, and the possibility of injuries to workers from tumbling coils is removed.

We try to make Alphaduct the finest, longest lasting drop wire money can buy. Quality materials are used throughout, step-testing during every phase of manufacture assures uniform high standards. Alphaduct drop wire is dated with a color coded thread so you can tell for sure how long it lasts.

Try Alphaduct Drop Wire

ALPHADUCT WIRE AND CABLE COMPANY • MILLTOWN, NEW JERSEY

NATIONAL DISTRIBUTORS • LEICH SALES CORPORATION, CHICAGO, ILLINOIS

REGIONAL DISTRIBUTORS • PANKEY SUPPLY CO., CHARLOTTESVILLE, VA. •

THE LINDSAY TELEPHONE SUPPLY CO., CLEVELAND, OHIO

helped. But why advertise our most profitable service in a form that may not be read easily by some 30 or 40 millions of our customers?

S. W. Bell Purchases 11 General Tel. Exchanges

SALE OF 11 North-Central Oklahoma telephone exchanges to the Southwestern Bell Telephone Co. has been approved by the Oklahoma Corporation Commission.

S. W. Bell paid the General Telephone Co. $290,000 for the exchanges, and plans to spend $1-million converting them to dial as part of a giant improvement program in the state. Involved in the transfer are exchanges at Billing, Mulhall, Marland, Red Rock, Morrison, Glencoe, Ripley, Yale, Coyke, Carney and Perkins.

General Of Southwest Moves Into New Building

THE GENERAL TELEPHONE CO. of the Southwest, the largest Independent in that region, moved Nov. 22, into its new $1,000,000 general head-

Coming Conventions

Minnesota Telephone Association, Saint Paul Hotel, St. Paul, Feb. 14, 15 and 16.

Louisiana Telephone Association, Jung Hotel, New Orleans, Feb. 16 and 17.

Kentucky Independent Telephone Association, Phoenix Hotel, Lexington, March 1.

Texas Telephone Association, Plaza Hotel, San Antonio, March 14 and 15

Nebraska Telephone Association, Cornhusker Hotel, Lincoln, March 22 and 23.

Ohio Independent Telephone Association, Deshler Hilton Hotel, Columbus, March 28, 29 and 30.

United States Independent Telephone Association Executives Conference, Belleview-Biltmore Hotel, Belleair, April 4 and 5.

Iowa Independent Telephone Association, Fort Des Moines Hotel, Des Moines, April 12 and 13.

Wisconsin State Telephone Association, Loraine Hotel, Madison, May 4 and 5.

Indiana Telephone Association, Claypool Hotel, Indianapolis, May 11 and 12.

The Illinois Telephone Association, Pere Marquette Hotel, Peoria, May 19 and 20.

Pennsylvania Independent Telephone Association, Pocono Manor Inn, Pocono Manor, June 1 and 2.

New York State Telephone Association, Scaroon Manor Hotel, Schroon Lake, June 13, 14 and 15.

Oregon-Washington Independent Telephone Association (joint convention). Olympic Hotel, Seattle, Wash., June 17 and 18.

quarters building in San Angelo, Texas, and company president Walter G. Wright announced that a formal dedication and banquet was held at San Angelo December 7.

Mr. Wright said that the building is designed for 100% future expansion and the initial building, containing 58,470 feet of usable floor space, will meet the company's needs until 1962. The new structure houses only telephone equipment for communication requirements of the headquarters staff.

Two Loans Approved By REA; 500th Loan Contract Signed

A $461,000 LOAN to the DeKalb Telephone Cooperative, Alexandria, Tenn., was approved Nov. 19, by the Rural Electrification Administration. The fourth loan to this company is to take care of 1040 subscribers not covered by the first three loans. REA has now approved $919,000 to the DeKalb co-op to serve almost 2,000 subscribers over 400 miles of line in four Tennessee counties.

REA also signed its 500th loan contract on November 19. The contract is with the Pleasanton (Kans.) Telephone Co., to cover an allocation several years ago for $240,000. The company, operating in Lynn County, Kans., and Bates County, Mo., serves almost 900 subscribers in an all-dial operation.

Also approved by REA last month was a $119,000 loan to the La Center (Wash.) Telephone Co. Along with funds from an earlier grant, the company plans to improve or expand service to 430 subscribers in Clark County. Service will be provided through three dial central offices.

Verne Clark Named Operating V.P., Fort Dodge

FOLLOWING IT'S October purchase of the Fort Dodge (Ia.) Telephone Co.'s common stock, Central Telephone Co. moved last month to put two of its top men in operating spots at Fort Dodge. First, directors of the Fort Dodge company elected Verne B. Clark, Lincoln, Neb., operating vice president. Second, the board authorized employment of Kenneth A. Young, La Crosse, Wis., to serve as plant manager.

Fort Dodge President, D. M. Kelleher said, "These additions to the management personnel of the company are to better enable the company to completely fulfill the changing and ever-increasing service requirements in this progressive, growing community, where it has been necessary for our company to provide engineering, financing and construction to serve more than 60 per cent additional telephones in the Fort Dodge area during a short period of only ten years."

Verne Clark has had broad business training and experience, including various management responsibilities during the past 27 years of service in properties of the Central Telephone Co. system.

Kenneth Young, the new plant manager, has, for the past five years, been plant manager for Central's western division operations, embracing Iowa and four nearby states. During his 20 years service with the company, he has had responsibility on central office equipment, outside plant operation and engineering in the 53 communities served by the company in northern Iowa and southern Minnesota.

$11,393,000,000 Spent By Communications Industry Since 1940 On Construction Of New Plant

SINCE 1940, the wire communications industry in the United States has invested $11,393,000,000 in new plant, according to a breakdown made last month by the Communications Division of the Business & Defense Services Administration of data collected by the US Commerce Department.

The industry's expansion program has proceeded unevenly since 1940, with World War II and the Korean conflict bringing large cutbacks in the construction program. The table above shows the year-by-year record of expenditures. Figures for the first half of this year and estimated spending for the latter six months of 1954 show that the total expenditures for the current year will just about match 1953. 1955 figures are expected to equal 1954 expenditures.

The information shows that the telephone — both Bell System and Independent — and telegraph industry has from 1940 through 1953 spent a total of $859,700,000 on new buildings; $3,952,400,000 on outside plant, including pole lines, underground and aerial plant, drops, etc.; and $6,580,500,000 on all other construction, such as central office and subscriber station equipment and general equipment.

(in thousands)

	Buildings	Outside Plant (a)	All Other (b)	Total
1940	$ 14,000	104,000	223,600	$ 342,000
1941	23,000	150,000	277,000	450,000
1942	18,000	131,600	220,400	370,000
1943	3,700	52,800	108,500	165,000
1944	4,000	74,000	107,000	185,000
1945	8,000	104,000	163,000	275,000
1946	41,000	257,000	432,000	730,000
1947	119,000	383,000	758,000	1,260,000
1948	175,000	531,000	845,000	1,551,000
1949	108,000	419,000	623,000	1,150,000
1950	57,000	378,000	510,000	945,000
1951	69,000	413,000	648,000	1,130,000
1952	100,000	465,000	785,000	1,350,000
1953	120,000	490,000	880,000	1,490,000
TOTALS	$859,700	3,952,400	6,580,500	$11,393,000

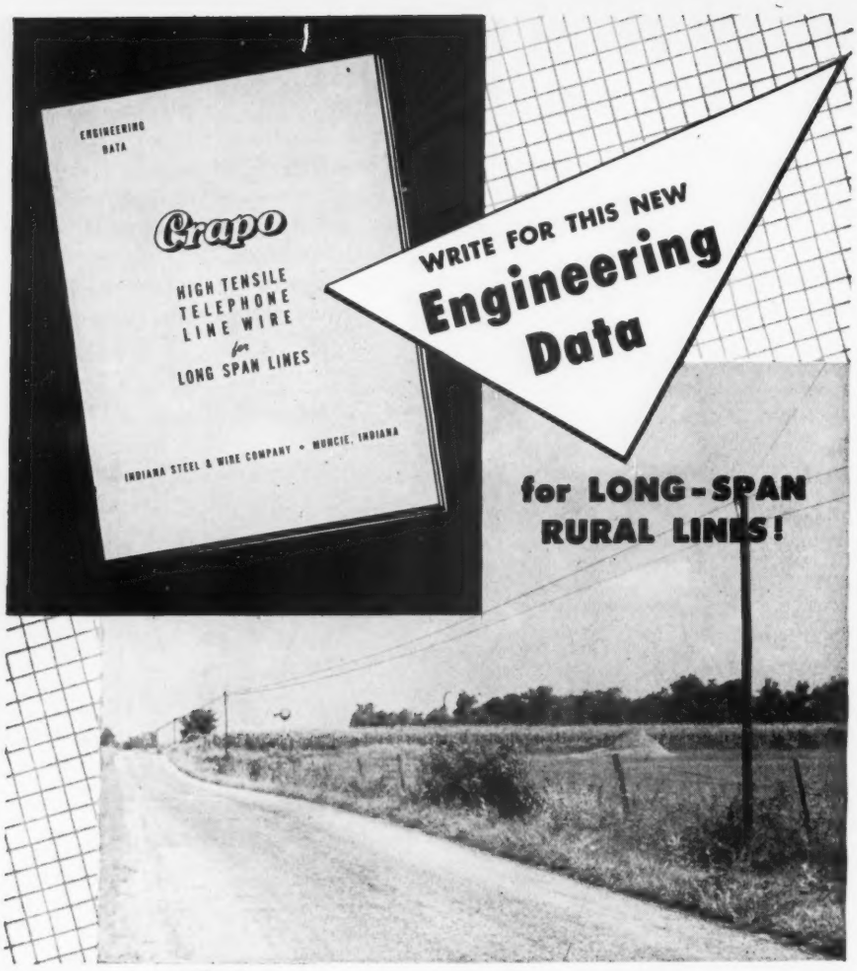
(a) — includes pole lines, underground and aerial plant, drops, etc.
(b) — central office and subscriber station equipment and general equipment. —end.

AT&T Declares 135th Consecutive $9.00 Dividend

THE BOARD OF Directors of the American Telephone & Telegraph Co. last month declared the usual quarterly dividend of $2.25 a share, payable Jan. 15 to shareowners of record on Dec. 15. It is the 135th consecutive dividend at the annual $9 rate paid over a period of 33 years, and will go to about 1,300,000 share owners.

Dividends Declared By Gary & Associated Tel. & Tel.

THE BOARD OF Directors of Theodore Gary and Co. last month declared dividends of 40 cents per share on first preferred stock for the


ENGINEERING DATA
Crapo
HIGH TENSILE TELEPHONE LINE WIRE for LONG SPAN LINES
INDIANA STEEL & WIRE COMPANY • MUNCIE, INDIANA
WRITE FOR THIS NEW
Engineering Data
for LONG-SPAN RURAL LINES!

SPECIFY *Crapo* HIGH-TENSILE

TELEPHONE LINE WIRE FOR LOWER OVERALL COST

Crapo HTL-85 INDIANA STEEL & WIRE CO. MUNCIE, INDIANA U.S.A.

For Medium Long Spans

Crapo HTL-135 INDIANA STEEL & WIRE CO. MUNCIE, INDIANA U.S.A.

For Longer Spans

Crapo HTL-190 INDIANA STEEL & WIRE CO. MUNCIE, INDIANA U.S.A.

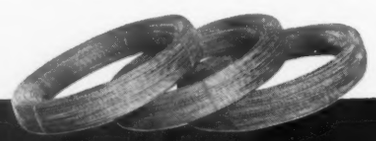
For Extra Long Spans

● FEWER pole structures are required where *Crapo* High-Tensile Line Wire is used in building rural telephone lines. This means substantial savings in time, labor and material. There are fewer holes to dig and poles to set, less material to be handled, installed and connected — all of which contribute to lower overall construction costs.

Crapo High-Tensile Line Wire also makes for lower maintenance costs. Its superior tensile strength offers increased resistance to ice and wind loads . . . provides a greater margin of safety. Heavy galvanized coatings assure dependable, lasting protection.

For maximum savings in the construction and maintenance of rural telephone lines, specify the *Crapo* Telephone Wire which best fits your requirements.

LATEST ENGINEERING DATA, including Stringing Sags and Tensions, Staking Tables and Guying Tables for Heavy, Medium and Light Loading Districts, are now available. Write today for your copy of Data Book No. N-53.



INDIANA

STEEL AND WIRE CO., MUNCIE, IND.

quarter ending Dec. 31; a quarterly dividend of 30 cents per share on the participating common stock and on common stock; and a year-end additional dividend of 30 cents on both participating common and common stock.

Associated Telephone & Telegraph Co. declared a dividend of $1 per share on the Class A stock and $3 per share on the common or ordinary stock of the company.

United Utilities Income Shows Rise During 1954

UNITED UTILITIES, INC., had consolidated operating revenues for the first three quarters of 1954 of $18,077,856, compared with $16,941,862 for the same period of last year, it was reported last month. During the same period, the company and its subsidiaries had net operating income of $2,761,024, against $2,583,322 for the same nine-month period of 1953.

The parent company, alone, had total income in the first nine months of this year of $1,543,326, compared with $1,156,991 in the like period of 1953, while net income in the comparative periods amounted to $1,132,102 and $839,924, respectively.

Tel. Bond & Share Reports Increase In Income

CONSOLIDATED net income of Telephone Bond & Share Co. in the first nine months of this year amounted to $1,387,726, equal to $4.24 per share on the 5% cumulative preferred stock and $1.18 per share on the common. Corporate net income of the company for the same period amounted to $1,321,290. President F. S. Spring reported to stockholders last month that only seven stockholders remain in dissent to the company's recapitalization plan. They hold 103 shares of 7% first preferred stock and 16 shares of class A common stock.

General of Pa. Purchases Citizens Tel. Property

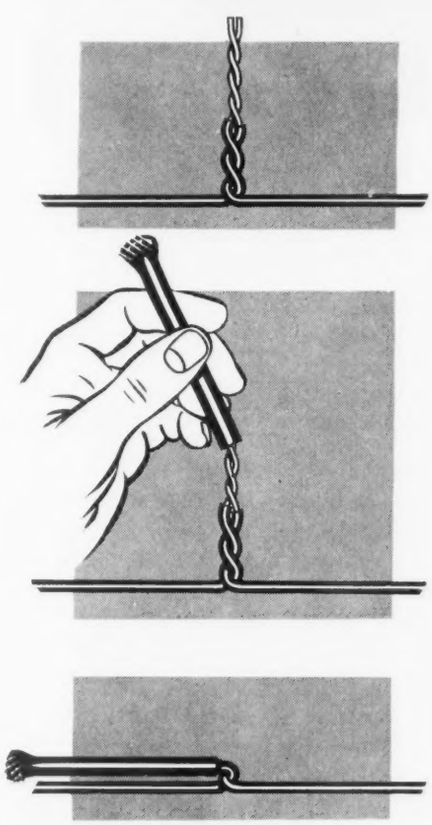
THE ACQUISITION of the Citizens Telephone Co. Central Section, Inc., operating in Davidsville, Jerome, and adjacent area, in Conemaugh Township, Somerset County, by General Telephone Co. of Pennsylvania effective December 1, was announced last

Make Splices MOISTUREPROOF, WATERPROOF ... from inside out!

Maintain service with Superior Cable's NEW

"Super-Splice"

(Patent applied for)



Now . . . soon after the introduction of SUPERIOR all-plastic sheathed and insulated cable the new SUPERIOR "Super-Splice." The plastic device is "factory-filled" with a positive sealing agent which maintains the same consistency at both very high and very low temperatures.

This vastly improved method of splicing is the result of extensive research and has been subjected to exhaustive underwater tests.

Low cost "Super-Splice" is simple, safe and sure and makes the individual conductor splice permanently as good as the cable . . . from inside out!

Moistureproof, waterproof SUPERIOR "Super-Splice" is available to purchasers of SUPERIOR CABLE.

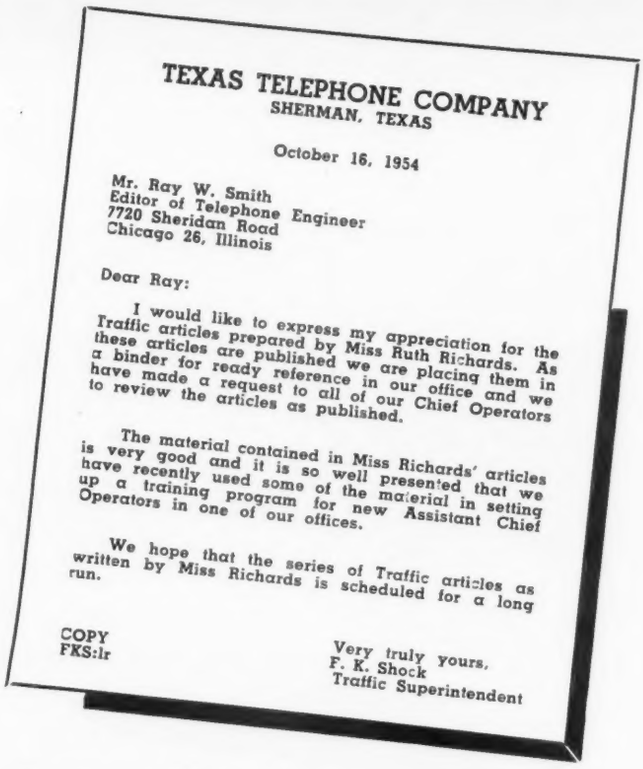
For details, write

SUPERIOR CABLE

SUPERIOR CABLE CORPORATION · HICKORY, NORTH CAROLINA

From Letters Like This . . .

Your editors realized the need for an up-to-date course for training traffic personnel. As a consequence Miss Ruth E. Richards (well known through her writings in Telephone Engineer & Management and with years of experience to call upon) prepared the following course to appear in future issues of Telephone Engineer Magazines.



TEXAS TELEPHONE COMPANY
SHERMAN, TEXAS

October 16, 1954

Mr. Ray W. Smith
Editor of Telephone Engineer
7720 Sheridan Road
Chicago 26, Illinois

Dear Ray:

I would like to express my appreciation for the Traffic articles prepared by Miss Ruth Richards. As these articles are published we are placing them in a binder for ready reference in our office and we have made a request to all of our Chief Operators to review the articles as published.

The material contained in Miss Richards' articles is very good and it is so well presented that we have recently used some of the material in setting up a training program for new Assistant Chief Operators in one of our offices.

We hope that the series of Traffic articles as written by Miss Richards is scheduled for a long run.

COPY
FKS:lr

Very truly yours,
F. K. Shock
Traffic Superintendent

A Practical Guide For Training Traffic Employes

SERVICE is more than a seven letter word. Service is the sum total of what your office offers or provides its customers. It is produced most easily by people especially trained for the job — who know how to deal with customers and with each other in daily contacts. Complete and detailed outlines of "what every supervisor should know" will be presented in this new series that will appear in lesson form in coming issues of Telephone Engineer Magazines.

Now Commercial Superintendents like Mr. Shock will not have to piece together the various articles written by Miss Richards in order to have an up-to-the-minute training manual. They will have a complete course in proper training order at their finger tips through coming issues of Telephone Engineer Magazines.

To present a more clear picture of the completeness of this course a partial breakdown of its contents follows.

Handling Operator Requests for Assistance:
- (a) In frequently encountered conditions
- (b) Difficulty in handling calls

Administration of Force
- (a) Applying the seating plan
- (b) Securing replacements for absentees
- (c) Rearranging force to meet unusual conditions

Management of A Division
- (a) Overlapping
- (b) Teamwork
- (c) Use of equipment
- (d) Checking ticket work
- (e) Reporting equipment trouble
- (f) Providing tickets, pencils, sleeves, and cord clips
- (g) Maintaining orderliness of furniture, equipment and material
- (h) Adjusting chairs and telephone sets
- (i) Arranging fans, heat, light, and ventilation
- (j) Eliminating unnecessary noise

Movement of Traffic
- (a) Answering signals
- (b) Subsequent attempts
- (c) Congestion of traffic
- (d) Handling emergency and urgent calls
- (e) Keeping the Chief Operator informed on unusual service conditions
- (f) Referring conditions to other offices
- (g) Handling requests received from other offices

Customer Contacts
- (a) Tone of service
- (b) Handling Customer contacts
- (c) Assisting customers on calls on which difficulty is encountered
- (d) Handling criticisms

Emergency Activities
- (a) Handling emergency calls
- (b) Action in case of a central office emergency
- (c) Action in case of a public emergency

OTHER SPECIAL ARTICLES COMING UP

*Fundamentals of Good Plant Management * Commercial Practices For the Small Company * Writing Up Job Routines * A One Man Cable Tester * New Mobile Power Unit * Storage Cabinet for Unattended Dial Offices * Portable Generators Provide Emergency Power and * Information Program for Reducing Damage to Outside Plant . . . plus * the outstanding course now appearing on "Cable Plant Construction."

Mr. Manager

TELEPHONE ENGINEER Magazines offer ideas, how-to-do-its, new developments and training courses that encourage every one of your employes to do a better job and thus be of greater value to your company.

Why not follow the action of many telephone company managers and subscribe to TELEPHONE ENGINEER Magazines for each of your employes. The cost is but $3 per year . . . and we will be glad to send them in care of your company or to their home address.

Please send TELEPHONE ENGINEER & MANAGEMENT and FORTNIGHTLY TELEPHONE ENGINEER for one year to the following:

Name .....
Company .....
Address .....

Name .....
Company .....
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Name .....
Company .....
Address .....

I am enclosing check for $..... covering each at $3 per year . . . or . . . Please bill us.

SIGNED .....
COMPANY .....
ADDRESS .....

TELE-VIEWS

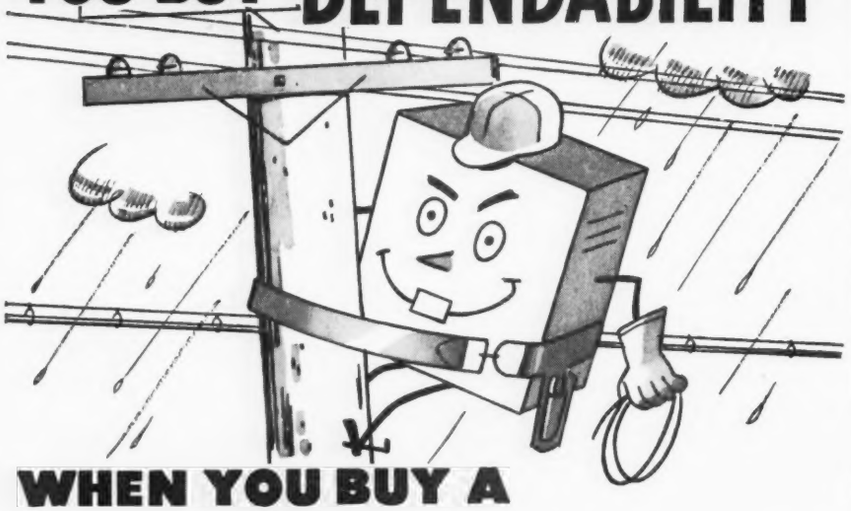
Outgoing President of the Oklahoma Telephone Association, R. E. HARRIS of Purcell shown addressing the convention. (See p. 77)

WILLIAM W. BROOKS joined the General Telephone Co. of Indiana as public relations director on Nov. 15. Prior to joining General he was night editor of the Frankfort (Ind) "Morning Times" and, previous to that, wire editor and reporter for the Seymour (Ind) "Daily Tribune." (For complete story see page 18.)

ADVANCED TO NEW POSTS: — General Tel. Co. of Wisconsin last month named H. P. SIEBKEN (l.) its executive vice pres.; RICHARD A. SCHULTZ (center) was named chief engineer; and A. W. RAFFILL was appointed general plant manager. (See Page 16)

CABLE SPLICING: — JAMES P. McCLUSKY, the Pacific Telephone & Telegraph Co., demonstrates modern methods of splicing cable to telephone men at "Plant Clinic," Seattle, Wash. (For complete story, see story on page 76.)

YOU BUY DEPENDABILITY



WHEN YOU BUY A

RAYTHEON **RECTICHARGER**

(BATTERY CHARGER)

Dependability is the number one requirement of equipment for the Telephone Industry.

RAYTHEON **ENGINEERING REPORT**

SUBJECT: Oldest RectiChargeR

Careful testing and inspection of this unit reveals:

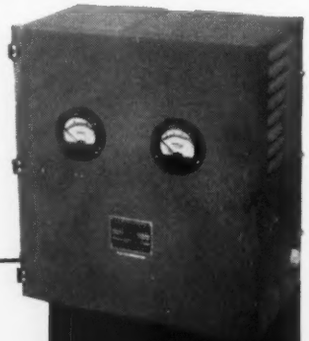
1. Electrical qualities in no way impaired (see chart).
2. A noticeable lack of rust or corrosion on chassis, hardware and components.
3. Original paint shows no sign of deterioration.
4. No evidence of embrittlement or cracking in varnish on magnetic components.
5. All hardware sound and secure.
6. Cable firm and unbroken.
7. Lacing intact with all wiring firmly in original position.
8. All soldered joints secure and strong.

(Signed) George L. Blais
ENGINEERING DEPT.

The dependability of Raytheon RectiChargeRs is amply demonstrated by the service records of units now in use. A typical example is shown in the Engineering Report at the right. And there's no reason why the "old" RectiChargeR described in the report can't go on giving the same faithful service for many more years.

It's no accident that Raytheon RectiChargeRs are setting performance records. Every detail of electrical and mechanical design has been carefully worked out with dependability as the guiding principle.

You get dependability automatically when you buy a Raytheon RectiChargeR, just as you get fully automatic battery charging — with constant voltage output over the complete load range regardless of input change — without under or overcharging.



RAYTHEON

MANUFACTURING COMPANY

EQUIPMENT SALES DIVISION

DEPT. 6120-TE, WALTHAM 54, MASSACHUSETTS

DISTRICT OFFICES: BOSTON, NEW YORK, CLEVELAND, CHICAGO, NEW ORLEANS, LOS ANGELES (WILMINGTON), SAN FRANCISCO, SEATTLE

INTERNATIONAL OPERATIONS: 589 FIFTH AVE., NEW YORK CITY

RAYTHEON PRODUCTS INCLUDE: RectiChargeR* battery chargers; RectiFilteR* battery eliminators; Voltage stabilizers (regulators); Transformers; Tubes and other electronic equipment.

*Reg. U. S. Pat. Off.

Specify Raytheon RectiChargeRs and RectiFilteRs for completely dependable Telephone service. Your supplier offers a complete line for all requirements. Ask him for details or write direct.

month by L. F. Shepherd, president of General Tel. of Pennsylvania. Arrangements for the acquisition were made with Elwood Burgess, Sr., president of Citizens company.

General Telephone plans to make service improvements and to conduct a program of rehabilitation of telephone plant.

Du Pont To Become Assistant To Sec. Weeks

FRANCIS V. DU PONT, commissioner of Public Roads, announced last month he will resign soon to devote full time to several highway problems, including reimbursement to utilities of highway relocation costs, as a special assistant to Secretary of Commerce Sinclair Weeks. Mr. du Pont said his duties as commissioner have made it impossible to devote the required time to several major projects.

Mr. du Pont has generally been lined up against payment to non-railroad utilities of their relocation costs in connection with construction of federal-aid highways. When Congress passed a law calling for a report on the subject in early 1955, the identity of the reporting official was changed from Mr. du Pont to the Secretary of Commerce on the grounds that the commissioner "might be prejudiced."

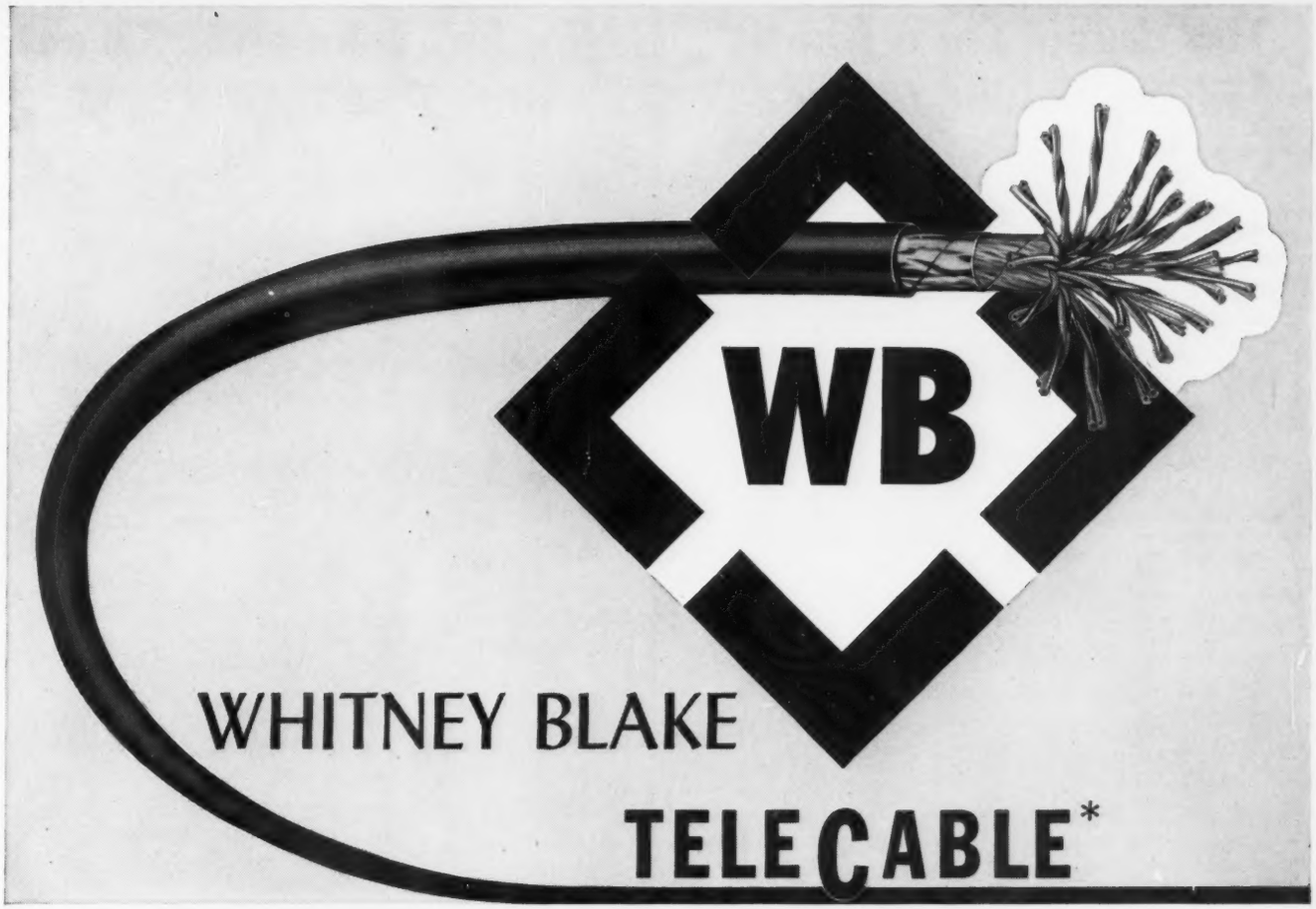
Veteran Iowa Company Votes For Dial Service

THE "OLDER" ways of rural community living made their latest concession to modernity in Sully, Ia., last month when stockholders of the Sully Independent Telephone Co. voted in favor of changing over to a dial system.

The Sully company has been in operation for more than 50 years. Heading the company as president is Guy Van Wyk.

Sixth General Of N.W. Exchange Converted To Dial

CHEWELAH, WASH., became the sixth exchange of the General Telephone Co. of the Northwest to be converted to dial operation on Dec. 8, it was announced by President W. R. Jarmon. New facilities, Mr. Jarmon disclosed, include the construction of new trunk lines to Coalville and Spokane as well as the installation of a 11-new cable within the town itself and complete rebuilding of all rural lines served by the exchange.



is the *ONLY* Exchange Area Cable for Aerial and Duct Use with Polyethylene Insulation and POLYETHYLENE SHEATH . . . the thermoplastic sheath that *REALLY PROTECTS*

Polyethylene sheathed cable is the best cable for outside use because . . . polyethylene is the most DURABLE thermoplastic sheath material.

High molecular weight polyethylene used to sheath TELECABLE has maximum chemical inertness and possesses superior weathering properties. It withstands sunlight and extremes of atmospheric temperature. It is not subject to environmental cracking. It is extremely light weight, tough, yet flexible, and resists the stresses encountered during installation . . . It can be expected to perform satisfactorily on TELECABLE for upwards of 20 or 25 years.

No other thermoplastic material has given as good assurance of aerial cable sheath life expectancy as has polyethylene.

TELECABLE Exchange Area Cable is REA approved under Specification PE-14.

Order TELECABLE Exchange Area Cable today and take advantage of the most advanced thinking in cable design combined with the Whitney Blake reputation for products of the highest quality.

TELECABLE IS AVAILABLE FOR PROMPT DELIVERY.

Whitney Blake also makes TELECABLE Inside Wiring Cable. Order some for your inside plant.

Write for descriptive literature on TELECABLE.

*TELECABLE is a trademark of Whitney Blake Co.

WELL BUILT WIRES SINCE 1899

WHITNEY BLAKE COMPANY

NEW HAVEN 14, CONNECTICUT

This druggist was frantic when working alone...

Now he's calm and efficient with PEATROPHONE

We nominate the American druggist as one of the unsung heroes of our land – but at the same time suggest that Peatrophone telephone answering service would be more helpful to him than a bronze plaque.

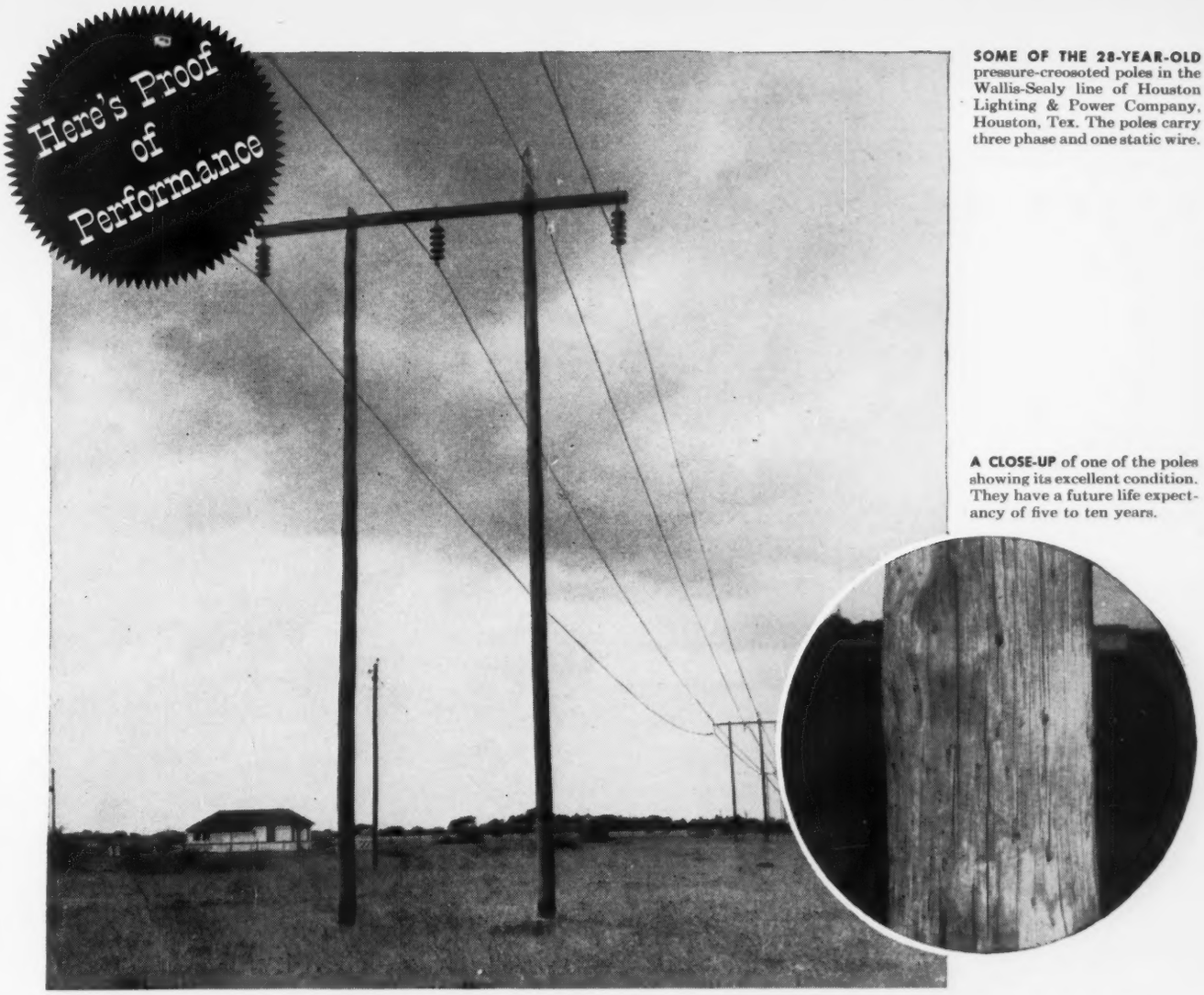
Our druggist today is expected to run a prescription department, an ice cream parlor, a cosmetic shop, a candy store, a library and a specialty shop. He's expected to run a telephone order service too – and in rush hours it's next to impossible to satisfy store customers and telephone customers too.

Because Peatrophone answers this problem of telephone calls during busy hours, druggists are immediately interested in the service. Tell any druggist that when the store is busy he need only flip a switch to have Peatrophone answer every call and take messages – and *you will have a prospective subscriber for Peatrophone service.* Then tell the druggist that he can play back the messages and fill the phone orders as soon as he is free – and *you will have an order for a Peatrophone rental!*

Call on the druggists today – give them Peatrophone's prescription for the most economical and efficient way to keep telephone customers happy – and *you will open up a new source of revenue for your company.*

Write today for complete information and literature on Peatrophone – your new source of revenue. Note: Selective harmonic ringing subsets now available – all frequencies.

TELEPHONE ANSWERING & RECORDING CORP.
342 Madison Ave. New York 17, N. Y.



SOME OF THE 28-YEAR-OLD pressure-creosoted poles in the Wallis-Sealy line of Houston Lighting & Power Company, Houston, Tex. The poles carry three phase and one static wire.

A CLOSE-UP of one of the poles showing its excellent condition. They have a future life expectancy of five to ten years.

247 pressure-creosoted poles installed in 1926

...233 STILL IN GOOD CONDITION TODAY

● A combination of warm moist climate and the prevalence of termites makes the use of pressure-creosoted poles a necessity for Houston Lighting & Power Company. It means the difference between five years of life for an untreated pole to 30 to 35 years for a treated one.

A good example of sound pole line planning is found in the 11.8 miles of 66 KV outer loop between the Texas communities of Wallis and Sealy—all pressure-creosoted poles. Here 247 poles were installed in 1926 (actually 260—but 13 were since replaced to obtain greater height). Today, after 28 years of exposure to weather and wood's natural enemies, 233 poles—or over 94% of the original line—remain in good condition, with a future life of 5 to 10 years.

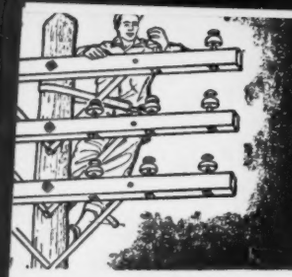
Houston Lighting & Power Company first used pressure-creosoted poles in 1921, and conversion has been complete now for more than 20 years. Southern yellow pine and fir poles are treated with Creosote to 10 pounds retention.

You can count on uniformly good results when your poles are treated with USS Creosote—the product of United States Steel's tar distilling operations. For more information on USS Creosote and the long pole life it assures, contact our nearest Coal Chemical sales office or write directly to United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pa.

USS CREOSOTE

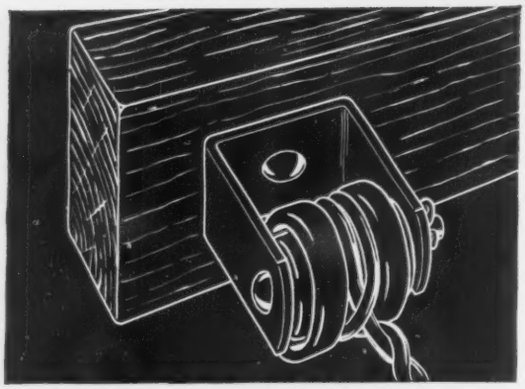
4-1466

UNITED STATES STEEL



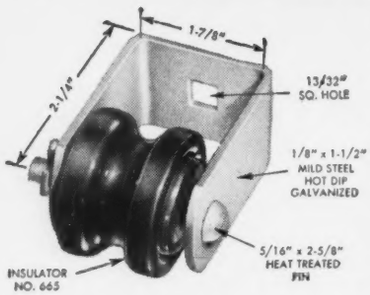
LINE CONSTRUCTION BLUEPRINTS

ITEMS SOME COMPANIES ARE USING TO MAKE LINE CONSTRUCTION WORK EASIER

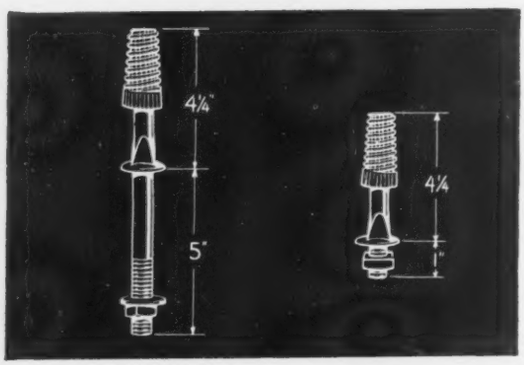


L-M DEAD END CLEVIS

Cat. No. 260084A1



Here's a strong, compact, galvanized-steel clevis which provides a most practical method for dead-ending. May be attached to either pole or crossarm, with a ⅜"-diameter carriage bolt. Square hole keeps clevis from turning. Clevis has ultimate strength of 2500 pounds. Spool insulator (must be ordered separately) will take up to 1500 pounds wire tension.



L-M STEEL INSULATOR PINS
WITH WOOD COBS

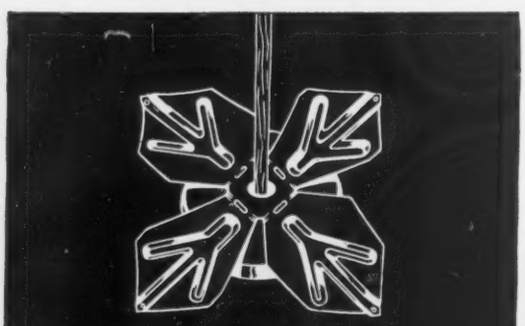
For wood crossarms: Cat. No. 9740, ½" diam.
Cat. No. 9741, ⅜" diam.
For steel crossarms: Cat. No. 9740S, ½" diam.
Cat. No. 9741S, ⅜" diam.

Strong steel pins, hot-dip galvanized, with seasoned oak cobs thoroughly impregnated with paraffin and threaded for 1" insulator holes. Pin for wood arm has square nut and clipped washer; pin for steel arm supplied with square nut only.

L-M 4-WAY PRESSED STEEL EXPANDING ANCHORS
DESIGNED FOR EXCEPTIONAL STRENGTH

Catalog Number	Diameter—Closed—Inches	Expanded Area—Square Inches	Nominal Holding Power Class—Pounds	Anchor Rod Diameter—Inches	Minimum Mechanical Strengths Without Noticeable Deformation—Pounds
200026B1	8	110	6,000	⅝, ¾	16,000
200026B2	8	125	8,000	⅝, ¾	21,000
200026B3	8	132	10,000	1	24,000
200026B4	8	132	10,000	⅝, ¾	24,000

All 3 sizes are REA-approved, and have been thoroughly tested and approved by major utility companies. You can depend on them to hold!



Notice the additional area inside the center of gravity of two opposed blades which gives utmost area for increased holding power, without sacrificing balance of the anchor.

Heavy steel, with skirted edge to prevent deformation. A nut retainer strap welded to the underside reinforces the hole so that the nut cannot pull through the base plate.

Two-piece design . . . The four blades are formed of a single piece of steel, and are held to the base plate by four small bolts, which simply shear off by tamping. The center hole is extruded downwards. This extrusion provides a bearing surface against the rod to prevent binding; it reinforces the tamping area; and it provides an audible signal when the extrusion strikes the base, indicating full expansion.

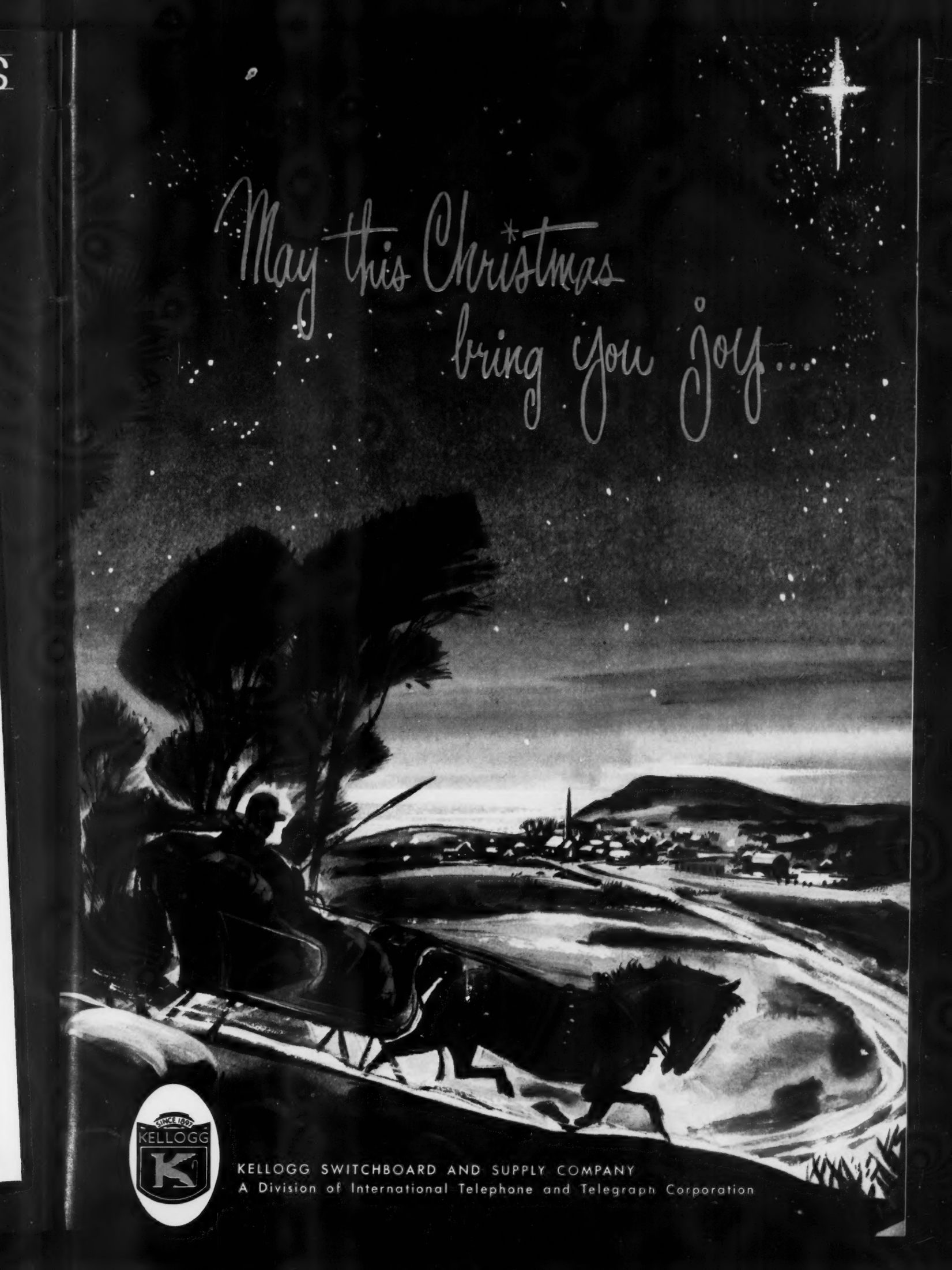
154-R

Do You Have a Line Construction Problem?

These are just a few of thousands of L-M line construction specialties. If you have a line construction problem, let us know. We may have standard or special items in stock that will solve it. Ask the North Electric or Kellogg representative, or the L-M Field Engineer. Or write Line Material Company, Milwaukee 1, Wisconsin (a McGraw Electric Company Division).

LINE MATERIAL
Line Construction Materials

Sold for L-M
to the independent telephone industry
by
KELLOGG Switchboard and Supply Company
and
THE NORTH ELECTRIC MANUFACTURING COMPANY



KELLOGG SWITCHBOARD AND SUPPLY COMPANY
A Division of International Telephone and Telegraph Corporation

KELLOGG

Your nearest Kellogg shipping point is never far away — KELLOGG'S six conveniently located warehouses and more than 100 supplier distribution points throughout the country assure you fast, economical delivery of guaranteed line supplies.

Your Nearest Kellogg Shipping Point Is Never Far Away!

KELLOGG DIVISION OF IT&T

KELLOGG SWITCHBOARD AND SUPPLY COMPANY
Sales Offices: 79 W. Monroe St., Chicago 3, Ill.
A Division of International Telephone and Telegraph Corporation

Send Your Next Order for Supplies To:

BRANCH WAREHOUSES AND OFFICES:

6000 W. 51st Street
Chicago 38, Illinois

410 N. Syndicate Avenue
"Midway Area"
St. Paul, Minnesota

1663 Mission Street
San Francisco 3, California

4501 Truman Road
Kansas City 1, Missouri

1515 Turtle Creek Blvd.
Dallas 2, Texas

1555 West Fourth Street
Mansfield, Ohio

BRANCH OFFICES:

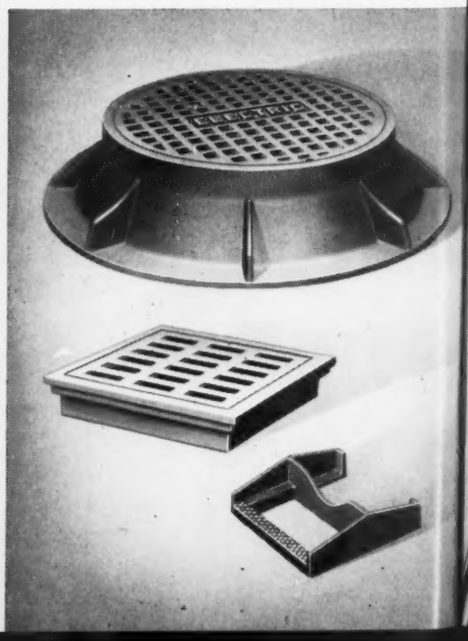
406 S. Main Street
Los Angeles 13, Calif.

720 S. W. Washington Street
Portland 5, Oregon

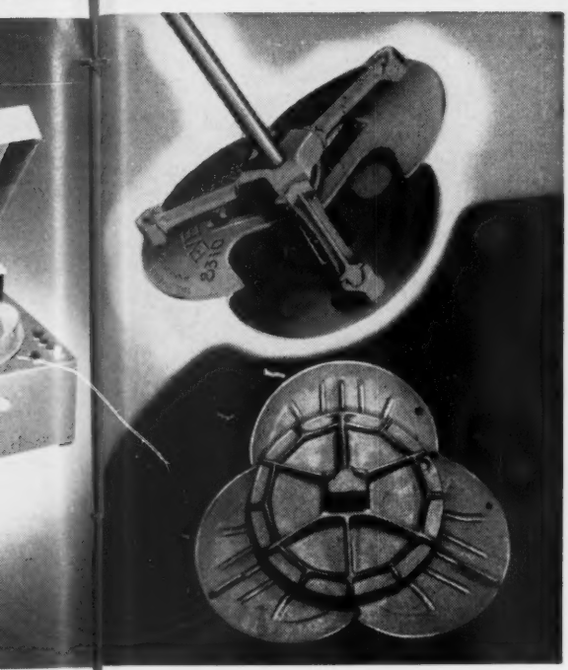
Peatrophone Answers the Telephone automatically—allows subscriber to record his own "talk-out" messages on the instrument, advising where he can be reached or when he will return. Talk-out messages can be used indefinitely, since recording is permanent.

•

Complete Line of Construction Castings for Underground Electric or Telephone Service. Shown are manhole frame and cover; sump and catch basin frame and grate; and cast iron manhole steps. For service and quality use NEENAH FOUNDRY CO. products.



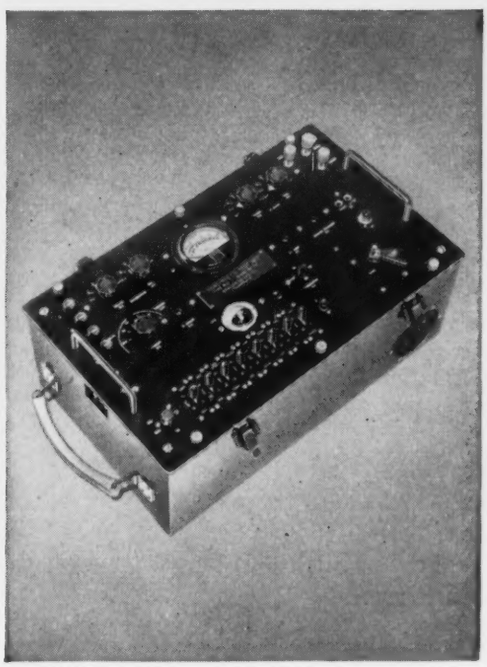
HEADQUARTERS FOR SUPPLIES



The Expanding Plant and Spreader Arms of Everstirk Anchors insure 100% safety and maximum holding power under excessive strain. Ribbed base plate allows anchor to be locked solidly on rod. Quickly installed. Made by EVERSTICK ANCHOR CO.

•

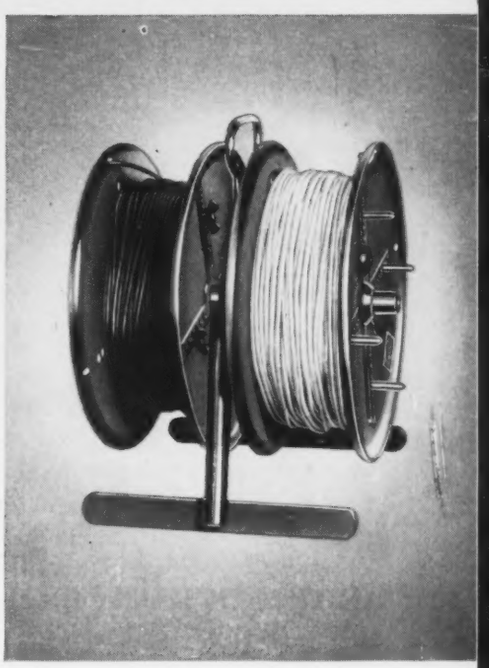
Lasts 30% Longer! Long service life and low plant costs go hand-in-hand with the installation of ENDURPRENE—The Neoprene Drop Wire available in Copperweld and Bronze. Flexible, easy to handle. GENERAL INSULATED WIRE WORKS, INC.



The No 693 Transmission Test Set measures all electrical characteristics of telephone lines and associated equipment—used by repairman in locating defective components in a telephone system. SHALLCROSS MANUFACTURING COMPANY.

•

Simplicity of Design in the "955-A" Protector guarantees station protection. The P-495 Self-Cleaning Sawtooth Discharge Blocks allow static discharges to be drained without danger of leaving the line grounded. RELIABLE ELECTRIC CO.



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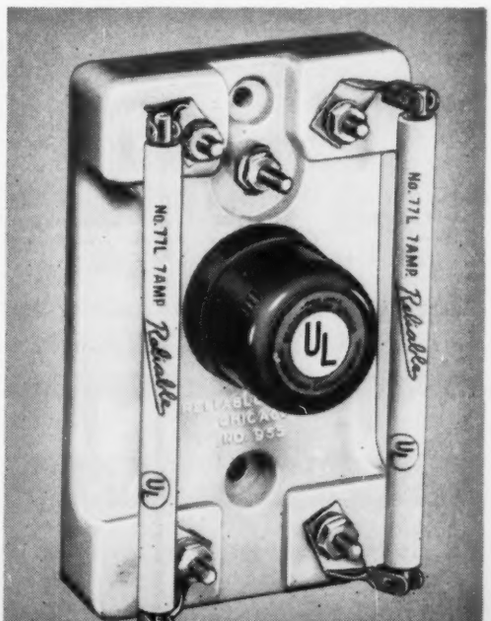

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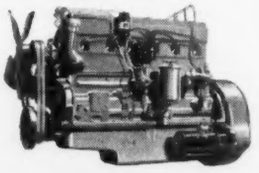
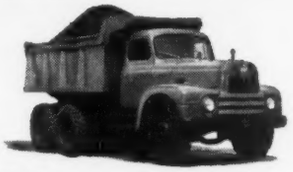


NEW increased power, with all-new 201-hp Royal Red Diamond 501 engine standard in new high-power-to-weight 220 Series models.



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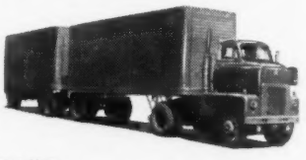

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Telephone Engineer

EDITORIAL

Telephone Engineer

Bargain-Counter Depreciation

WHENEVER telephone people get tired of arguing about anything else, they can always agrue about depreciation — which is a subject with as many angles as a box of carpet tacks.

We do not profess to be expert on the matter, but we do have some ideas about it. One of them comes to the point that some people seem to be buying depreciation at bargain prices these days.

The theory of regulatory bodies is, as we understand it, that the purpose of depreciation accounting is to recover for the utility company the net cost — i. e., the cost less salvage — of depreciable property retired from plant. The purpose is, therefore, not that of replacing the property retired.

The prevailing regulatory theory is, also, that the cost of depreciation should be calculated on original cost of the property. But there are accountants and engineers of experience and repute who maintain that, even in the utility business, depreciation should be calculated on the present price level, rather than on original cost. Their position is that, unless the present price level is used, the net profit of the business is not correctly stated.

In the non-regulated industrial field there are concerns that go even further and base their depreciation on replacement costs.

We are not attempting here to revolutionize the present theory and practice of depreciation accounting in the telephone business. But there are questions in our mind about the present situation.

For instance, it is generally recognized that the "present fair value of the property used and useful in the service of the public" is still one of the basic factors to be considered by regulatory bodies in the determination of a rate base. In some states the law requires that this factor be taken into account, and in many cases the courts have required that it be taken into account.

Now, if the "present fair value" rule applies to the property in the making of a rate base, why should not the same rule apply to that same property in determining the basis for depreciation?

Commissions are generally careful, and properly so, to protect the rights of future patrons as well as those of present patrons, and vice versa. But it seems to us that they are giving present subscribers quite a break when they base depreciation on original cost.

A large majority of present telephone subscribers have been subscribers through the years of the large and rapid advance in prices of practically everything. Yet they are providing for the depreciation of a large part of the property being used up in their service, on the basis of the much lower costs of years ago.

Prices appear, now, to be gradually levelling off. So future subscribers are not so likely to obtain, as present subscribers are receiving, the benefits of a depreciation rate that is lower because it is based largely on the original costs of years ago.

It seems to us that, in the telephone business, present rates of depreciation are bargain-counter rates, and that they will remain so, if the original cost basis continues to be used, so long as a considerable portion of telephone plants consists of things that were put into those plants at the much lower prices of the past.

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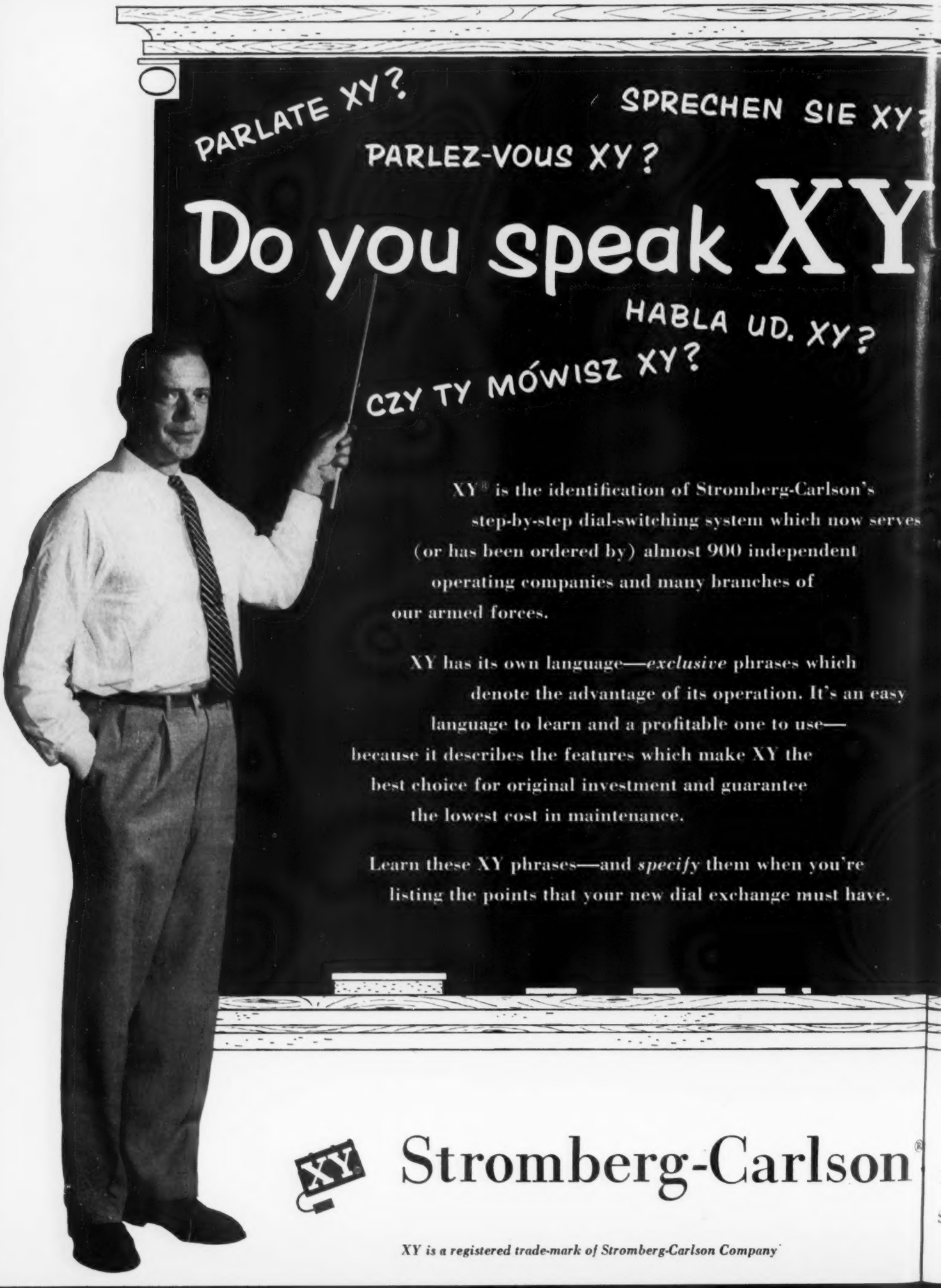

XY® is the identification of Stromberg-Carlson's step-by-step dial-switching system which now serves (or has been ordered by) almost 900 independent operating companies and many branches of our armed forces.

XY has its own language—*exclusive* phrases which denote the advantage of its operation. It's an easy language to learn and a profitable one to use—because it describes the features which make XY the best choice for original investment and guarantee the lowest cost in maintenance.

Learn these XY phrases—and *specify* them when you're listing the points that your new dial exchange must have.

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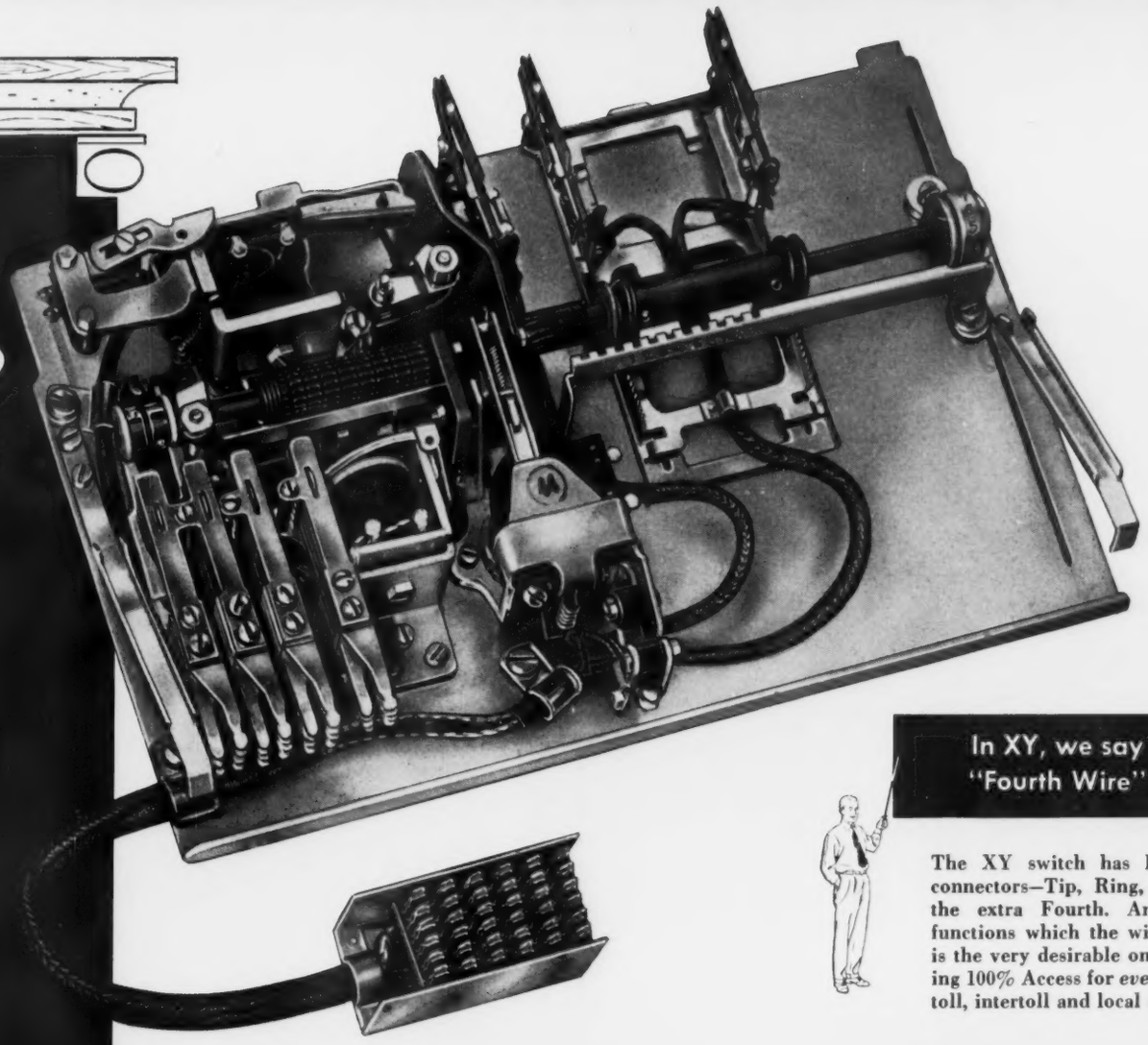

In XY, we say "Fourth Wire"

The XY switch has FOUR wire connectors—Tip, Ring, Sleeve and the extra Fourth. Among many functions which the wire performs is the very desirable one of providing 100% Access for *every* switch, to toll, intertoll and local connections.

In XY, we say "Save on Maintenance"

XY's Wire-Bank Multiple System—400 continuous vertical wires (contacts) to each switch group—reduces the probability of trouble due to soldered connections and eliminates maintenance of bank multiple.

In XY, we say "Universal Use"

With the XY Dial System, *any* switch can be used as a Finder, a 1st, 2nd, or 3rd Selector, or a Connector. Such versatility results, among other things, in a welcome flexibility for future expansion.

In XY, we say "Twin Contacts"

In spring pile-ups and wipers, throughout the entire XY Dial System, we use twin contacts. Laboratory tests indicate reliability from 36 to 52 times beyond that obtainable with single contacts.

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The XY Dial System is in complete readiness for Subscriber Toll Dialing. Using a magnetic tape recorder based on the design of the XY switch itself, our XY Toll Ticketing System is a perfect answer to the problem of increasing revenue.

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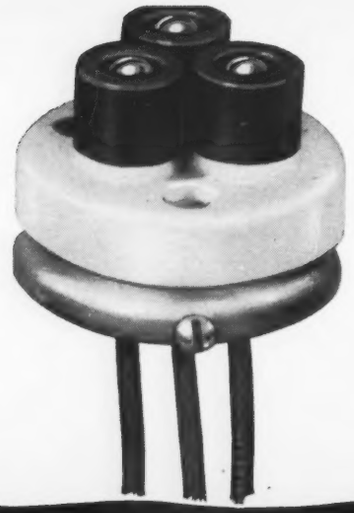
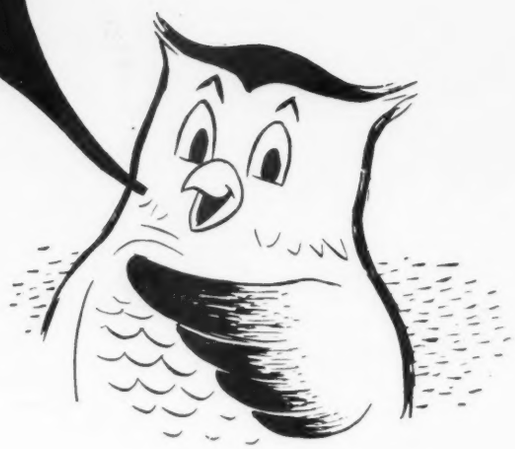


The HV Protector you knew is now the No. HVP Protector —it's better than ever, Boss!



This Reliable protector is a high voltage, high current unit, factory wired, for use on communication lines joint with power conductors and at power crossing conflicts. The unit may also be used as a high current lightning arrester for two wires. Two sizes are in production — the 30HVP with an air gap breakover of approximately 3,000 volts AC, RMS, and a Type 20HVP with a breakover of approximately 2,000 volts. The unit consists of three heavy duty, cylindrical carbon electrodes mounted on a steatite ceramic base. This base is attached to an aluminum bracket and covered with a weathertight, bug proof drawn aluminum shell.

One 6 ft. and two 2 ft. No. 10 insulated copper conductors enter the base through neoprene grommets. Wires are permanently connected to the carbon electrodes by solderless method. Cover is secured to the bracket base with a screw clamp — and can be removed for inspection. The 30HVP and 20HVP protectors are for use on one pair of open wires. Yes, sir, Boss, the "HVP" looks like a dandy . . . I think you should ask for a sample for inspection.

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Capitalize On Criticism

By Carroll H. Jones,
Editor, The Stevens-Davis Co.

THE ABILITY to capitalize on criticism is a priceless talent that not many of us possess. As a result we are constantly setting up roadblocks on our pathway to success.

MARSHALL FIELD was one of the greatest retail merchants who ever lived. The department store he founded in Chicago more than 100 years ago is known throughout the world for the service it renders its customers as well as for the quality and variety of its merchandise.

One of the principal reasons for Marshall Field's outstanding success was his willingness — even eagerness — to accept criticism and turn it to his advantage. As he once remarked to a business associate of his:

"Those who enter to buy, support me. Those who come to flatter, please me. Those who complain, teach me how I may please others so that more will come. Only those hurt me who are displeased but do not complain. They refuse me permission to correct my errors and thus improve my service."

Like so many others, Marshall Field discovered early in his career that, although praise may be a wonderful tonic for our spirits and morale, nevertheless it is through constructive criticism that we are able to discover our failures and shortcomings, correct them and turn them to our profit and advantage.

It is the one sure road there is to *self-improvement.* There's no doubt about that.

The ability to capitalize on criti-

cism is a priceless talent that not many of us possess, unfortunately. As Chief Justice Charles Evans Hughes once pointed out, *"If you can accept and profit by criticism, you have a priceless ability possessed by few of your fellow men."*

This is true regardless of what particular position you hold in life. The man who works in a plant and the woman who works in a store are in the same position as the presidents of their companies. The former should be able to benefit by criticism and suggestion from supervisors, foremen or floor managers. The presidents, in turn, must be able to accept and profit by the criticism and suggestions of their customers and boards of directors, or else they will soon find themselves out of a job.

"Roadblocks To Success"

OF COURSE most of us know these things and will readily admit the truth of all this. But the point is, we pass all this out as good advice to others, but fail to put it into practice for ourselves.

As a result, we are constantly setting up roadblocks of *our own making* on our pathway to greater success, greater accomplishments — and greater happiness — when we could be *tearing them down* instead.

Why is it that so few of us, then, are willing — or *eager* — to capitalize on criticism by others and turn it to better advantage for ourselves — use it as a means to *permanent* self-improvement?

Undoubtedly the principal reason is that our wounded feelings of pride and self-esteem get in our way and make us instinctively reject what is usually being told us for our own good. The secret, therefore, of being able to capitalize on criticism on the part of others and to accept it gracefully is to try to forget, for the time being, those easily wounded egos of ours and determine if there may not be some real merit in the criticism that is worth accepting and acting upon.

The next time a business associate, friend or acquaintance criticizes you, it will help if you withhold your decision on the honesty of the criticism until your pride has recovered sufficiently from the disappointment or irritation caused by the censure. Instead of bristling inwardly and rushing to defend your so-called pride and self-esteem, it will prove far more rewarding in the end to try to listen your critic out before jumping to the conclusion that you are being unfairly abused.

MEET THE AUTHOR

Born in Evanston, Ill., and a graduate of Harvard, where he also took his master's degree in literature, CARROLL JONES was a reporter on the "Chicago Daily News" for five years before entering the field of educational and industrial public relations.

During the war he served as public relations officer for the Air Forces Materiel Command in Dayton (Ohio), Wichita (Kans.), St. Louis (Mo.) and Chicago.

For the last seven years he has been associated with The Stevens-Davis Co., Chicago, Ill., which is currently celebrating its 50th year as publishers of employe-training programs in the field of human relations. Mr. Jones is editor of their present program, "Human Relations — At Home, At Work and At Play."

If you are willing to do this calmly and dispassionately — temporarily holding your feelings of resentment in check until you have had an opportunity to weigh the merits of the criticism from a less jaundiced point of view — you will rarely regret it. Usually you will find that your critic has uncovered some failure or shortcoming on your part that can, and should be, corrected if you want to make the most of your abilities and continue to improve so that you can go on to the greater achievements of which you are capable.

Sometimes the criticism is made in a friendly way; other times, unfortunately not. And it takes courage and determination of a high order to be willing to admit to ourselves that we are by no means as perfect as we would like to think we are.

Yet if our confidence in ourselves is so weak that we refuse to accept criticism gracefully and, instead, prefer to chalk it up to envy, jealousy or some other malicious or unpleasant motive on the part of others, then we are doing ourselves more harm than good.

We are simply cutting off our nose to spite our face.

"Learn To Control Your Feelings"

IT IS NATURAL and human for us to consider all adverse criticism of ourselves unjust at the time it is made. Seldom are we able to distinguish between *destructive* and *constructive* criticism when first given. So that leads to the first rule to observe if you want to capitalize on criticism:

If you think criticism is intended to belittle or discourage you, show no evidence of your feelings for at least 48 *hours afterwards.* Then, after your emotional reaction has finally subsided, you will be better able to reach a sounder conclusion. Regardless of what your conclusion may be, you will find that your subsequent conduct will be the wiser for having been moderated by the passage of time.

The best way to do this is to turn to some activity immediately after receiving the criticism. During the bombing of London in the last World War, it was found that people who threw themselves into the work of removing rubble right after the raids suffered far less from emotional shock, anger and self-pity than those who remained inactive.

Then, too, it is natural and human for us also to interpret criticism of some act, attitude or belief of ours as an indictment of our entire personality or intellect. We forget that no one seriously expects perfection from any of us — that our batting average for long-range performance is what counts. Even the best batter strikes out now and then.

So that brings up a second rule to remember if we want to turn criticism to our advantage:

Remember that the opinion others have of you will depend on your over-

Criticism is useless unless it is constructive. Supervisors and department heads can turn their employes into far more efficient workers if, instead of reproaching them for errors or mistakes, they capitalize upon them as opportunities for further instruction and learning.

all average performance, not on any single act or idea.

Keep in mind also that most of the criticism we receive in everyday life comes from people who wouldn't waste time or words criticizing us unless they thought us capable of doing better. As Charles Buxton once remarked, "Silence is the severest critic."

It is obviously to our advantage, then, that we analyze criticism for ways and means to improve ourselves.

There is a wise old saying you have undoubtedly heard to the effect that "one can see one's faults best through other people's eyes."

Which brings us to a third rule that will help us capitalize on criticism by learning something from it.

The trouble with most of us is that we take criticism too personally, as though it were an indictment of our entire selves. We forget that it is our over-all batting average that really counts.

Make good use of other people's eyes — they can see things you can't.

Here, then, are three basic rules all of us would do well to observe if we want to let other people help us make the most of ourselves through suggestions and criticism:

(1) Give yourself a cooling-off period of at least two days before deciding that your critic is necessarily unfriendly or unjust, and try to keep actively occupied in the meantime.

(2) Don't exaggerate the importance of criticism by jumping to the erroneous but common fallacy that your entire personality or over-all performance is being criticized. It is usually just a single act or idea.

(3) Try to learn something from every piece of criticism — some way in which you can improve yourself, your performance or your personality so that you can win the greater respect of others and build a stronger — more realistic — basis for your own self-respect. If you don't happen to like your critic, improve yourself for the benefit of your friends or family, at least.

It has been said that "a critic is your best friend." Certainly he can prove to be your greatest teacher if you are willing to allow yourself to profit from his suggestions by learning how you can improve yourself, your job performance and your personality. Learn the art of making good use of other people's eyes. They do see things that you overlook. — THE END.

Helpful Booklets

"HOW TO USE HAND TOOLS." — With the do-it-yourself movement gaining such proportions that people are apt to build almost anything themselves, from coffee tables to houses, tools have become an interesting topic. *Crescent Tool Company, Jamestown, N. Y.*, has put out an excellent, illustrated booklet on its line of hand tools.

Booklet shows how to use the many sorts of hand tools the company makes. Pictures of the tool in hand accompany the explanations. Advice for both the amateur and the professional mechanic on how to choose tools properly is also given. "Select them as critically as you choose your friendships," says the foreword. "And then when they are yours, treat them as a gentleman treats a friend."

Latter part of the 28-page booklet takes the form of a catalog, picturing Crescent line tools by number.

Booklet, titled *How to Use Hand Tools* is available free on request by writing: *Crescent Tool Co., Jamestown, N. Y.*

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Designing Modern Communication Lines

By J. N. PETRIE*

PART IV of Mr. Petrie's article discusses entrance and intermediate cables in open-wire plant. Part III of this article appeared in the November issue.

OPEN-WIRE facilities usually must be brought into offices or intermediate exchanges or repeater stations through cable pairs. Also, it frequently becomes necessary to install sections of cable in otherwise wholly open-wire lines because open-wire construction is impractical for physical or for other reasons. Insertion of cable in an open-wire line results in reflection effects due to the unequal impedances unless corrective measures are provided. Corrective measures must be introduced in this change from open-wire to cable construction, which involves a transition from a line of essentially 600 ohms impedance and a relatively low loss per unit length to one of approximately 130 ohms impedance and a relatively high loss per unit length.

Mismatch of impedance probably will increase crosstalk in the open-wire plant to an undesirable extent, particularly at the higher carrier frequencies. Also excessive transmission losses may result at certain frequencies due to the reflection effects, even though the attenuation loss of the inserted cable would not be excessive if the mismatch did not exist. It is also possible for the cable to contribute substantial amounts of crosstalk or noise unless proper remedial measures are provided.

In view of the effects mentioned above *it is undesirable* to insert cable in open-wire facilities without proper treatment and should be limited wherever practical. It will usually be impossible to avoid completely the use of entrance and intermediate cables and, therefore, their effects must be considered in the engineering of open-wire circuits. In the usual situation, any one or all of the five specific problems listed below, may be encountered and must be considered:

(1) Impedance matching at the open-wire/cable junction.

(2) Selection of the optimum type and gauge of cable where a choice is feasible, as in the case of new construction.

(3) Segregating or balancing of the cable pairs and quads to mitigate the crosstalk that will be contributed by the cable to an absolute minimum.

(4) Proper consideration of the attenuation losses contributed by the cable. This may involve the proper selection of gauge for the longer cables involved and in some instances, especially for the shorter cables and at the lower frequencies, installation of carrier loading.

(5) Control of the impedance of the cable to prevent reflection effects. In some instances in connection with low-frequency carrier systems, the use of carrier loading may be indicated.

The detailed solution to the several problems posed above involves careful consideration of the equipment arrangements both at the terminal and repeater points. That is beyond the scope of this paper but will be touched on later. However, it will be appropriate at this time to point out some of the general considerations involved, which are:

(1) What type of cable will best meet the requirements?
In general, any 13, 16, 19 or 22 gauge non-loaded paper insulated cable, quadded or paired, may be utilized. The attenuation of the various gauges must however, be taken into consideration in the overall design of the carrier terminal and repeater spacing.

(2) Non-loaded or loaded 16 gauge spiral-four disc insulated cable also may be utilized if available or if the peculiar requirements are such as to justify this design.

(3) In certain cases, special low-capacity 10 gauge non-loaded paper insulated paired cable may be used if these facilities are available or if exceptionally low attenuation must be provided, such as might be the case in a submarine cable crossing to avoid an under water repeater.

Since the several pairs enclosed in a single cable sheath are in very close proximity to each other, relatively large crosstalk effects will exist. These effects can be minimized in

*Mr. Petrie is Manager, Carrier & Radio Sales, Automatic Electric Sales Corp.

the splicing technique employed while the individual cable lengths are being joined together. This involves testing and balancing in such a way as to cancel out the side to side and phantom to side capacity unbalances.

In addition to the measures referred to above, the longer entrance or intermediate cables when used for carrier transmission may require additional crosstalk mitigating measures. These consist of crosstalk balancing condensers connected between the several pairs involved. Also it is the usual practice to segregate carrier pairs in such a way that they are shielded by intervening pairs, quads or layers of conductors. Also it is frequently the practice to utilize cables having metallic shields between layers or specially shielded pairs. The use of shielded pairs (or quads) usually is justified only when severe crosstalk requirements must be met, such as would be involved in transmitting uncoordinated carrier systems through the same cable.

The need for employing the various techniques referred to above will depend upon the size of the cable, the arrangement of its pairs, quads and layers and whether or not existing or new cable construction is involved. Also it should be noted that, in general, satisfactory crosstalk performance can be obtained only between pairs of the same gauge, and, therefore, carrier systems should always be assigned so as to utilize pairs of one gauge.

Carrier loading was at one time quite popular, especially in connection with carrier systems operating below 35 kc. It should be noted that these cables when so loaded will not be suitable for the transmission of frequencies in excess of 35 kc and, therefore, arrangements must be made to separate the various groups of frequencies at the cable pole by the use of suitable junction filters. After separation of the various groups of frequencies those below 35 kc may be placed on the loaded cable pairs while the frequencies in excess of 35 kc will be transmitted over non-loaded and impedance-matched cable pairs. In this connection it should be noted that modern carrier systems such as the Lenkurt Type 45C-A and the W. E. Type OA preclude the operation of voice-frequency circuits on the same pair, and in these instances it is the practice to operate all frequencies from approximately 2000 cycles upward to 150 or 160 kc through intermediate or entrance cables of the non-loaded type by the use of auto-transformers for matching purposes.

The entrance and intermediate cables discussed above assume those lengths of cable commonly encountered in the open-wire plant. It should be noted, however, that where situations arise involving very long lengths of cable, connected to open-wire facilities, it will be desirable to utilize cable-type carrier systems through the long cables, and to install at the junction interconnector arrangements or frequency converting repeaters so that the carrier system may be operated under optimum conditions in both the transmission media involved. When situations of this type are encountered the latest techniques and equipment should be investigated by consultation with the distributor of the various types of equipment involved.

Other Factors to be Considered

IN ADDITION to the various conditions enumerated there are other problems that must be recognized and taken into account. The more common special conditions involve such items as long span open-wire crossings over rivers, canyons, or other unusual terrain, submarine cables that cannot be treated in accordance with the various techniques suggested above, branch lines bridged on the through circuits, carrier by-pass filters at cable terminals or in the open-wire plant, sections of line joint with other carrier users and repeater office "loops" that involve opposite directions of transmission and unequal energy levels. Also in some instances unusual or special electrical protection arrangements must be provided.

As has already been mentioned before, long open-wire spans may interfere with the correct location of transposition poles and thus result in excessive crosstalk effects. If their length or location is such that normal transposition points must fall within the span, then special treatment, such as floating transposition brackets, may be required. Also for physical reasons it may be necessary to increase the horizontal wire spacing in such spans and this will also affect the characteristic impedance and crosstalk coefficient, which can only partly be adjusted by providing proportionately increased vertical separation between the circuits involved.

Other devices that may be employed to cope with the various situations referred to above include:

(1) Disregarding the irregularity, if this is permissible on the basis of the calculated electrical effects.

(2) Installation of floating or mid-span transpositions if otherwise one or more transposition points would have to be omitted. This arrangement must be utilized with caution, however, because in regions of high winds the floating brackets may contribute to excess trouble situations unless the wire sag is very carefully controlled.

(3) In some situations the utilization of the catenary type of construction may be justified and thus permit placing the transposition points within the long span in a normal manner. In this situation the crossarms are suspended at the theoretically correct points and the whole structure assumes the appearance of a suspension bridge. This method usually must be resorted to if otherwise a large gauge of wire would be required within the long span to maintain the strength requirements

The decision as to which of the measures referred to above is to be employed in any particular situation must be carefully weighed in the light of local circumstances in order that overall satisfactory results may be achieved.

Submarine cables have already been referred to and usually will present no particular problem since impedance matched pairs generally can be utilized as for other intermediate cables. The only exception might be where the length is such as to involve attenuation in excess of the normal values permissible for a repeater section. In situations of this sort the problem should be referred to the distributor of the equipment for advice as to the proper solution.

In general the installation of bridged telephone sets or the bridging of intermediate switchboards on "through" long distance circuits is undesirable. This arrangement es-

pecially should be avoided when the through circuits are utilized for high frequency carrier transmission. If their use cannot be entirely avoided, bridged station filters can be utilized but proper and careful engineering will be required to reduce the possibility of interference between the low frequency and carrier frenquency facilities.

Occasionally situations are encountered in which the circuits of 2 or more open-wire lines are combined and routed over a single line for a considerable distance. Also in some instances a branch line off a main line may enter and leave an office on the same spur line. In these situations undesirable and in some cases intolerable near end crosstalk effects may occur unless appropriate measures are taken to avoid or mitigate them. Also under these conditions additional crosstalk may result from the high energy levels that will exist in the opposite directional transmission involved at repeater points.

Since these conditions are frequently difficult to remedy and considerable costs may be involved, their objectionable characteristics should be recognized in the early stages of planning in order that proper provision may be made for their solution and the most economical overall results be accomplished.

It is recognized that adequate protection must be provided to prevent abnormal induction or electrical interference from power lines, lightning and other sources. Since with the installation of carrier systems it frequently becomes necessary to provide junction filters at cable terminals and also by-pass arrangements at intermediate points together with auto-transformers and related equipment, it becomes especially important to be certain that proper and adequate protection is maintained at all times to prevent damage to this relatively expensive equipment. The specific arrangements to be provided are discussed later in connection with the equipment arrangements involved together with other special techniques employed to accomplish a maximum reliability of the carrier facilities superimposed on the line wires.

Occasionally during an emergency or abnormal conditions short lengths of twisted pair wire are inserted in open wire facilities to restore service. Because of the extremely low impedance of this type of wire it may cause excessive loss as well as objectional crosstalk due to the reflection effects involved. The undesirable effects resulting from the use of this type of wire can be remedied to a considerable extent by the use of auto-transformers. A more satisfactory, but somewhat more expensive arrangement, involves the utilization of a separate "drop wire" pair with the two wires taken together for each line wire involved. This latter type of construction assumes that two drop wires, constituting a pair, will be separated approximately the spacing normally encountered on pole line and will be kept off the ground as much as possible.—(To Be Continued.)

Small Company
Service Inprovements

By W. L. WRIGHT
President,
General Tel. Co. of the S. W.

IT'S HAPPENING in our region, small companies are beginning to improve their service. I think this is due to the program of assistance through committee meetings at district, division and State levels. After all, you and I know that a telephone company has only service to sell. Service improves when rates improve, to permit plant improvements. It's a circle that the small company needs to recognize. In fact, we must all recognize it if we're going to stay in business.

The service situation is the primary answer to the question you and I have both heard in conversation many times. People ask "Why are the larger companies interested in smaller companies." Some of the larger ones have people going round helping out and we wonder why."

The telephone business can not exist in one place alone. Two telephones must be available and connected before a telephone conversation can take place, and it has long been recognized that to make this service available nation-wide, there must be a telephone exchange or a toll station in every town, village or small concentration of homes.

The answer to the folks who are wondering why the Bell and larger Independent companies are so anxious to get smaller units in operating condition is this: The over all quality of the service is no better than its weakest segment. The old times when just ordinary service would do is past. If the small companies of today do not get this standard of good service established, they will not be able to stay in operation. Public pressure will ultimately force them to turn over their operation to other entities, either private enterprise or REA. Survival of the small company today is dependent upon service.

The Independents, particularly, passed through an era of building small town exchanges from the early 1900's to the outbreak of World War I, and then coasted along on plant and service. Since that time, there have been many improvements in equipments and methods. The service demands, after World War II, reached unprecedented levels and only now are even the larger companies catching up. In order to avoid criticism of the telephone industry in general, now that we have a chance, we must all improve our service. That's why I like to think of our program not as "aid to small companies" but as a program of service improvement. Through our committees we are striving to do something about service improvements.—*Condensed from address presented at the* 1954 *Convention of the Rocky Mountain Telephone Association.*

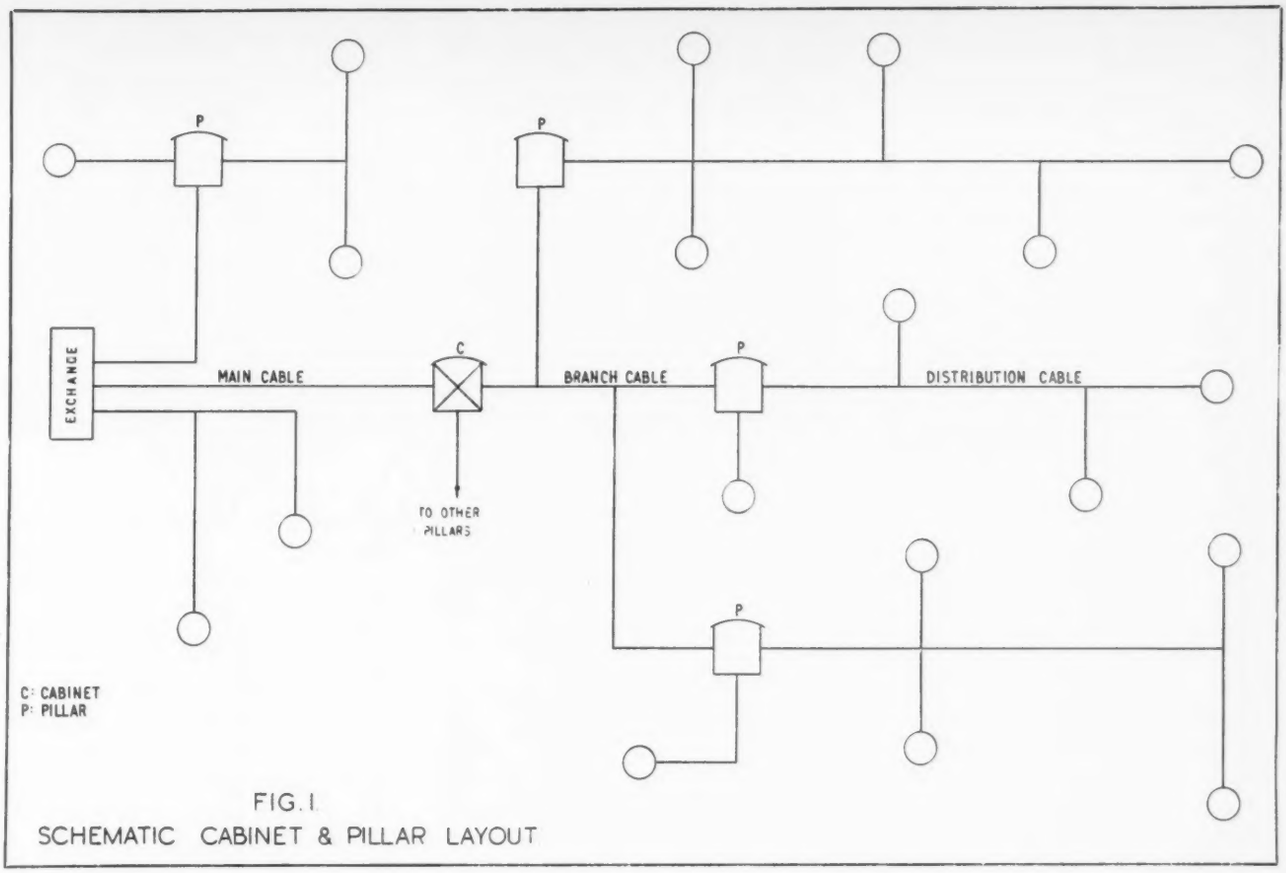


FIG. 1.
SCHEMATIC CABINET & PILLAR LAYOUT

Planning and Construction of

Local Line Plant In England

By R. G. TUNGATE

THE TYPE of plant used in Great Britain is greatly influenced by safety, appearance, and damp climatic conditions. Section One of Mr. Tungate's article describes the design of the local line development schemes used in England.

Introduction

IN THIS and succeeding articles, the methods of planning and constructing local line plant in Britain are described, and it is hoped that points of difference between American and British practice will be of interest. It should perhaps be remembered that geographical, political and climatic differences exist between the two countries, and that these influence methods of working.

The public telephone network in Britain is controlled and operated by the General Post Office. The overall financial control and development of new engineering methods is carried by Headquarters Departments as also is the purchase and distribution of plant and stores.

The country is divided into nine Regions each under the control of a Director. Each Region consists of some six or seven Telephone Areas, each controlled by a Telephone Manager, assisted on engineering matters by one or more Area Engineers.

A Telephone Area contains an average of one hundred exchange areas. Very little undeveloped territory exists as almost the whole country consists of industrial, residential or agricultural land. Exchange areas are, therefore, already well defined and only occasional slight adjustments of boundaries are required. There is no clear-cut division between urban and rural areas and no parallel to the Independent Companies in the United States except in the case of Hull where the system is owned by the city.

Local Line Development Schemes

THE DESIGN of a development scheme is dependent upon the number, size and location of distribution points(DPs). These may be

poles feeding subscribers by one span of covered drop or open wire, poles feeding overhead routes, terminal blocks on or in buildings, distribution frames in buildings, or sections of cable feeding underground leads into subscribers' premises.

The arrangement of DPs is dependent upon the type of plant already in existence, the type or class of territory to be served, and the presence of obstacles such as trees, wide roads, and high buildings. In arriving at the number and size of DPs to be provided, use is made of "forecast figures" which indicate the number of lines in a given area of territory anticipated in 5, 10, 15 and 20 years time.

The forecast is normally carried out under a block survey system. By this method an exchange area is divided into suitable arbitrary block areas; each block is then surveyed in detail and its future telephone requirements estimated, taking into account such factors as the rateable value of the property concerned, town planning proposals, and the anticipated trade development of the district.

Though a great deal of detailed work is involved in the preparation of the Development Study, it can at best only be an intelligent guess, and possible inaccuracies in the forecast are met by the planning officer by providing flexibility in the network by such means as: —

(a) Teeing.
(b) Auxiliary or mechanical joints containing a proportion of easily accessible pairs.
(c) Provision of pairs in excess of forecast.
(d) The Cabinet & Pillar system.

The method which has been adopted in Britain since the recent war is the Cabinet and Pillar system shown schematically in *Figure One*. By this means the subscribers' plant is divided into three groups as follows:—

(a) Main cables between exchange and cabinets.
(b) Branch cables between cabinets and pillars.
(c) Distribution cables serving DPs within the pillar area.

The cabinets and pillars are in effect street distribution frames having exchange-side and distribution-side terminals which can be interconnected by means of bridging pins or jumpers.

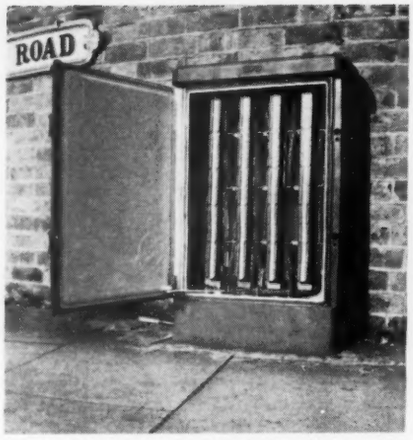


FIGURE TWO: — 400-line cabinet.

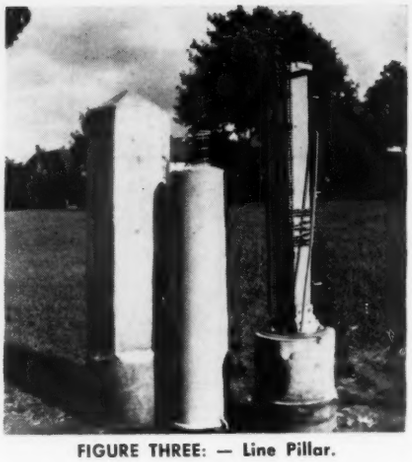


FIGURE THREE: — Line Pillar.

A 400-line cabinet accommodating 400 pairs on the exchange side and 400 pairs on the distribution side is shown in *Figure Two*. A 74-line pillar is shown, with the cover removed, in *Figure Three*.

The flexibility introduced by use of cabinets and pillars reduces the effect of errors in forecasts. Costly plant re-arrangements are avoided and the system enables comparatively short term provision to be made for main, and in some cases branch, cables. Multiple teeing is used to a limited extent in main and branch cables.

In designing a development scheme it is generally found convenient to site DPs first, then group DP areas into pillar areas, next group pillar areas into cabinet areas, and finally group cabinet areas along main cable routes. Some discretion rests with the planning officer in allocating forecast figures to particular DPs from the Development Study blocks, as the two do not necessarily co-incide.

As far as is reasonably practicable, DPs in urban areas are so sited that in all cases where service is by overhead plant, the DP concerned will have an ultimate development forecast of direct exchange lines and miscellaneous circuits at the 20-year period of 7 for a 10-pair DP and 11 for a 15-pair DP. Pillar areas are made up from a number of DP areas in which all the DPs can conveniently and economically be connected to a common flexibility point on the branch cable route. Care has to be taken that the provision of pillars is justified economically in each case and generally the sizes of pillars shown in *Table One* are suitable.

In a similar way the location of cabinets is decided upon the terminating capacity being as shown in *Table Two*.

The development forecast for a particular pillar or cabinet consists,

TABLE ONE

PILLARS

20 Year Development Forecast (Subs & Misc Circuits)	Terminating Capacity	
	Exchange Side	Distribution Side
Up to 30	54	54
31 to 45	74	74
46 to 60	100	100

TABLE TWO

CABINETS

20 Year Development Forecast (Subs & Misc Circuits)	Terminating Capacity	
	Exchange Side	Distribution Side
Up to 300	400	400
301 to 450	600	600
451 to 600	800	800

of course, of the total for all the DPs connected to it. It might be expected that a larger number of terminals would be provided on the distribution-side than on the exchange-side of cabinets and pillars since their chief purpose is to provide a means of interconnecting a number of distribution pairs to a smaller number of main or branch cable pairs.

The arrangement of terminals in practice, however, is such that each exchange-side pair terminates opposite a distribution-side pair on the moulded terminal assembly, so that the majority of connections can be made by short bridging pins rather than by jumpers. Also the provision of a comparatively large number of exchange-side terminals makes possible the termination of teed pairs if multiple teeing of main or branch cables is employed, and provides for the termination of link cables between cabinets or pillars if required.

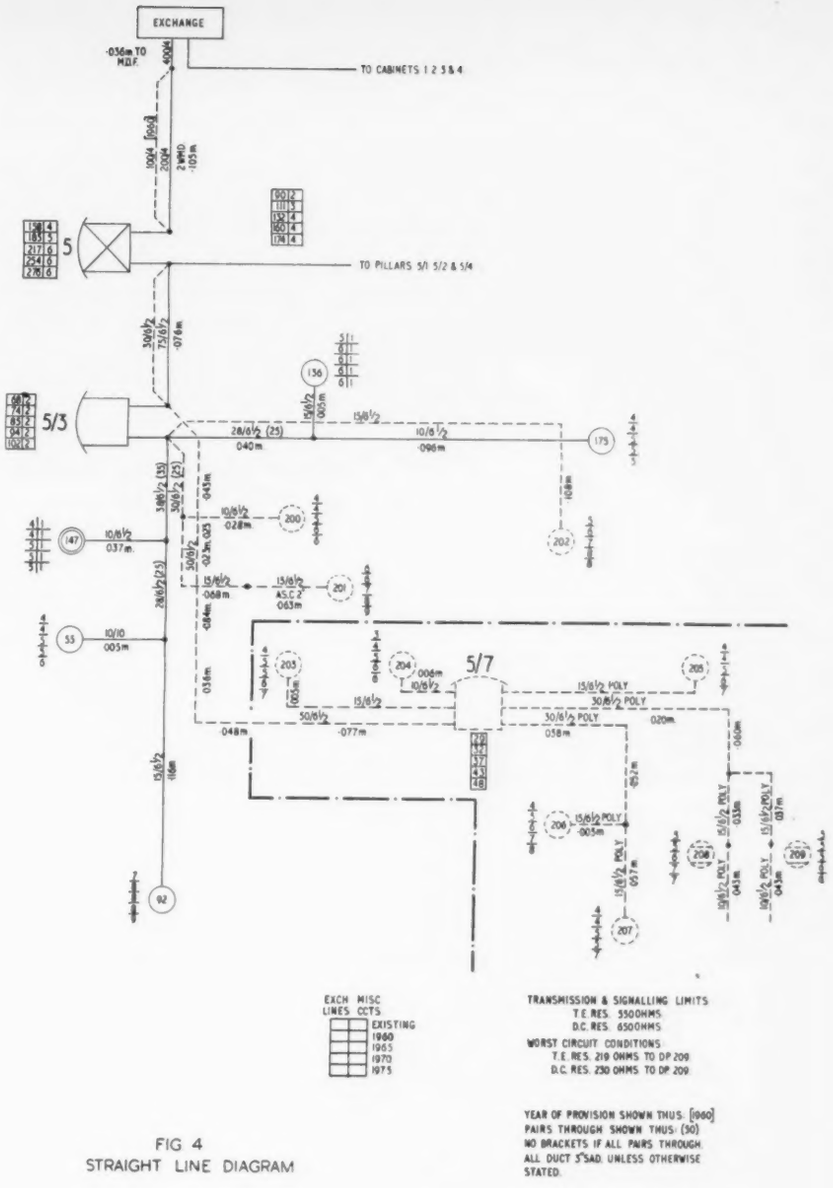


FIG 4
STRAIGHT LINE DIAGRAM

Transmission Considerations

SCHEMES ARE designed having regard for permissible transmission and signaling limits. The conductor sizes shown in *Table Three* are in general use in Great Britain. It will be noted that the wire size is expressed in "pounds per mile."

The "Volume Efficiency" basis of assessing the transmission loss in local lines has been replaced by a method of "Transmission Performance" which takes into account the intelligibility as well as the volume of the transmitted and received speech. Amongst other things, the effect of the attenuation of the line is considered. A long cable circuit of heavy gauge conductors has high wire to wire capacitance as compared with a circuit of light gauge conductors having the same resistance. Hence in the former case there is much greater attenuation of the higher frequencies, leading to poor quality speech.

To compensate for this it is necessary to increase the volume by reducing the permissible line resistance. Advantage is therefore given to lines composed of small gauge conductors and higher resistance limits are permitted. On the other hand, the presence of teed circuits adds capacitance to the line and allowance has to be made for the reduction in speech quality brought about when teeing is employed.

Material	Wt per mile lb	Nearest A.W.G.	Resistance per mile Ohms
COPPER, ANNEALED	4) Under-	26	220
	6½) ground	24	135
	10) cables	22	88
	20)	19	44
CADMIUM COPPER	40) Open	16	26
	70) wire	14	15
	31 Drop wire	17	34

TABLE THREE

To facilitate calculations, use is made of conversion tables or specially calibrated slide rules. In all cases, apart from speech considerations, it has to be ensured that the signalling limit for the circuit is not exceeded.

Fundamental Plans

SCHEMATIC diagrams known as "Fundamental Plans" are being introduced for each exchange area and these show planned main and branch cable requirements, together with the proposed relief measures, including existing, proposed, and deferred cabinets and pillars. Such plans give broad advanced information on relief requirements without the need for referring to detailed development schemes and are useful for such purposes as the preparation of annual estimates. They are, of

course, revised and adjusted as time proceeds.

Scheme Design Procedure

A STRAIGHT LINE DIAGRAM of the type shown in *Figure Four* is prepared showing the whole of the plant details as affected by the scheme. It is on these diagrams that the plant proposals are shown and it is generally convenient to work upon prints taken from the existing cable plans.

Cables are designated on plans by two figures separated by a stroke e.g. 50/10 represnts a 50 pair cable with 10 lb conductors. Included on the diagrams are DPs with their relative numbers, the development figures, and the types and sizes of existing and proposed cables.

The sites of proposed cabinets and pillars, deferred if necessary, are inserted together with the dates of provision and with the development figures alongside. Comparative cost studies are carried out to decide on the most economical means of providing main and branch cable instalments. Development figures are summarized along the cable routes. Some of the more commonly used graphical symbols for use on plans are shown in *Figure Five.*

EDITOR'S NOTE: — *Part II of Mr. Tungate's article will appear in the January,* 1955, *issue of* TELEPHONE ENGINEER & MANAGEMENT. *In Part II, Mr. Tungate will discuss: — Development Scheme Plans; Underground Duct; Buried Jointing Points; Lead Covered Cable; and Construction of Cabinets & Pillars.*

MEET THE AUTHOR

R. G. TUNGATE joined the British Post Office Telephone Service in 1936, and until the outbreak of the war in 1939 was chiefly concerned with automatic exchange maintenance. He served with the Royal Corps of Signals on line and exchange construction in France, Egypt and Eritria. In 1943 he was transferred to the Sudan Posts and Telegraphs Department for the duration of the war, first as Engineer in charge of Khartoum Telephone District and later as Development Engineer working on plans for the automatisation of several groups of exchanges. Service in the Sudan brought him into contact with U.S.A.A.F. personnel at Wadi Seidna and Fasher.

After the war he returned to the British Post Office where he was employed on local line plant planning in Birmingham prior to being transferred to the Engineer-in-Chief's office in London where he dealt with the design and development of tools and mechanical aids. He is now serving in the Midland Regional Headquarters of the Post Office, specializing in overhead and underground construction methods.

Mr. Tungate is an Associate Member of the Institution of Electrical Engineers.

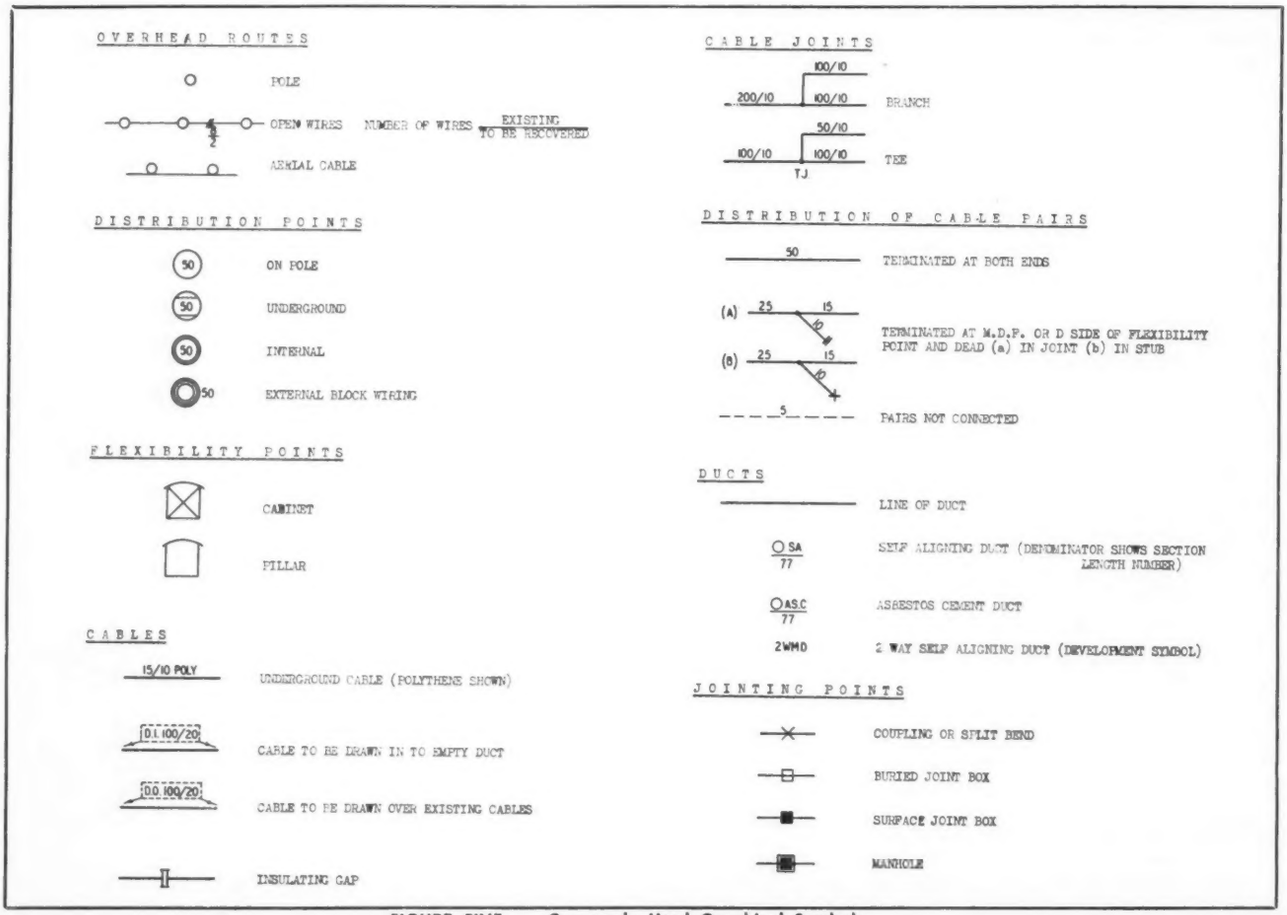
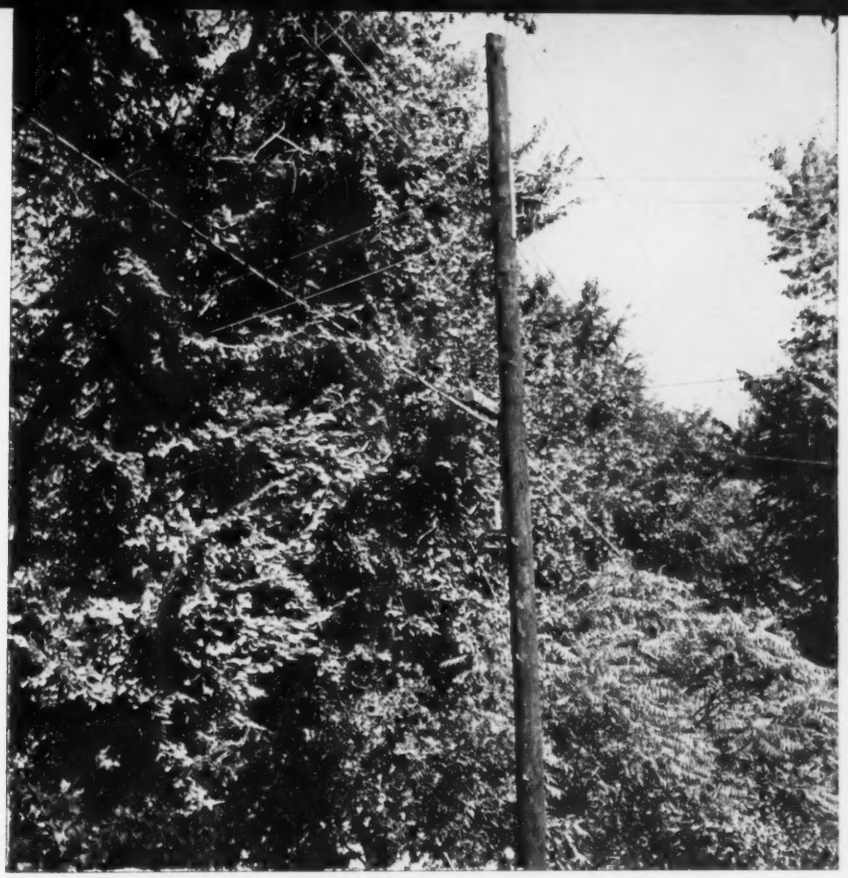


FIGURE FIVE: — Commonly Used Graphical Symbols.

Small Company Talk



Rate Disparity Problems

By BILL CORMAN*

WITH THIS article Mr. Corman begins a discussion of a common rate problem that "has been worrying small telephone companies off and on for years." It is Mr. Corman's hope that this discussion will spotlight the problem and result in suggestions for its cure.

HI, NEIGHBOR! — *John A. Brady*, secretary of the *Lousiana Telephone Association*, in a speech before the 1954 *Alabama-Mississippi Independent Telephone Association* convention, put new emphasis recently on a problem that has been worrying the small telephone companies off and on over the years.

The problem can best be illustrated by a specific example. The One-Party Business rate in Birmingham, Ala., is $18.50 per month; the same rate for Atmore, a much smaller city in the same state, is $6.75 per month. Birmingham happens to be a Bell exchange — Atmore is Independent — but that is not the point. There is approximately the same disparity in rates between large and small cities even if they are both Bell, or both Independent. And the same situation exists in every state in the Union.

There are two sets of generally accepted rate-making procedures which we must understand at this point. First, large telephone companies, almost without exception, present rate cases for whole companies rather than for individual exchanges — that is, a company with 30 or 300 exchanges makes no attempt to break down its profit and loss statement by exchanges, and therefore, it asks its commission for a combination of rates which will, *overall*, give it a proper profit. And this one, net, overall profit is based, in varying degree, on costs.

The second procedure is this. After arriving at the proper overall net, that figure is taken as a basis to work backwards from, in order to arrive at the rental figures for specific types of service. And this backing up process is *not* based on cost. That is, there is not necessarily any *cost* relationship between the 4-party residence and the 1-party business rate arrived at for a given exchange, nor between the 1-party business rates of the separate exchanges of the same company.

Actually, neither to the large company, nor to the commission, does it make the least difference, nor is it of the least concern, that the above is true. So long as the company gets a proper net profit, *overall*, it does not care whether it is still losing money in one particular exchange or not. And if the rate structure that is developed does not meet with un-

Please Turn To Page 56

**Mr. Corman is manager of the Southland Telephone Co., Atmore, Alabama.*

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It costs you nothing; it's no bother for you to ask your subscribers if they prefer a wall telephone or a desk telephone. That is, of course, if you're using the Leich 100, the only instrument that can be used either way without making any changes or additions. It's good public relations too.

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More and more people are asking for wall telephones

At home, Mama is the boss. She knows exactly what she wants and why.
This little lady has decided on a wall telephone. She figures that her home is small and she needs the table space for other things.
She also has decided that the youngsters are not as apt to "play telephone" if the instrument is on the wall and safely out of reach.
More and more, smart, modern women are deciding that a wall mounted telephone is more convenient and practical.
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GENERAL SYSTEM

due criticism from the public, there is no reason for the commission to worry about it either.

But it does make a difference, and it is of concern, to the small telephone company. For the result of the above procedures has been to create a wide gulf between the rates of the small exchange and the large exchange. When you have both large and small exchanges within the same company, as the large companies do, the gulf, as we have said, is of little concern. But when you have only small exchanges, which is all that most of the small companies have, then the problem becomes apparent. The small company has no large exchanges on which it can fall back — it must sink or swim with its little exchanges.

Large Company vs. Small Company

JUST AS THIS problem keeps popping up, so do answers to it — answers that try to prove that, while the above is all true, it does not create any particular difficulty for the small company. Answer number one: it actually costs more to operate, per station, a large exchange than it does a small one, so the rate differential is justified and does not hurt the small exchange. Answer number two: each company stands on its own feet before the commission in securing rates, and just because the small exchange rates of the large company are low is no reason that the small exchange rate of the small company must also be low.

Well, let's look at those two answers for a minute or two. Both, it must be admitted from the start, have some truth in them. As for the first answer, it is not hard to take some generalities and make a case that it costs more to operate in the large exchange, per station, than in the small. For one thing, the average amount of plant, inside the base rate area, that is required to reach the average telephone, is larger in the large exchange. Because of the higher grade of service, the per station cost in the large exchange is higher. And other reasons along the same line.

But let me call your attention to a point. *Not for years have the larger companies kept books on an exchange basis.* Such answers as the above can be made only in generalities, because no one has records to prove or disprove them. Oh, maybe occasionally a company will make a study, but the expense figures are usually broken down on a pro-rata station basis, with some variations here and there where it is easy to do, and such figures prove nothing except the assumption you make in the first place — that costs are smaller in a small exchange. In other words, when the pro-rata basis is used to break down the figures, the small exchanges usually come out in the red, which is taken, in turn, to prove that the costs in the small exchange are less than pro-rata (or less than the costs in the large exchange).

Actually, however, all that such a procedure proves is that, with the income from the small exchange fixed where it is, the application of pro-rata costs produces a loss for the small exchange. It does *not* prove that the application of pro-rata costs are improper, nor does it disprove that the small exchange needs more income to offset such costs.

Now all of that is on the complicated side. To put it the shortest way possible: No large company that I know of today has figures to *prove* that the gulf between small exchange and large exchange rates is justified. Don't let it be understood that I am criticizing them for not having such figures. The cost of maintaining such procedures, accurately and completely unbiased by assumptions, is next to impossible accountingwise, and what is possible would be very costly indeed — costly beyond the company's ability to justify such a cost. No, both commissions are correct in allowing, and the large companies are correct in insisting, that such breakdowns not be maintained or required. My point simply is that such breakdowns are *not* made, and that, therefore, no body of figures exists to prove that the rate disparity is generally justified.

Why then, do we stick to it? Why are the rates of small exchanges consistently set low, in relation to the rates of large exchanges? Since this is a frank article, I am going to be perfectly frank in the answers I give. There are two, and both have a rather large number of people who propound them.

The first, and I would guess the more widely accepted answer, is that this disparity exists because of historical precedent and public acceptance. That is, the disparity has long existed and has come to be accepted, whether it is right or not, by the public as normal. The public is accustomed to paying more for its service in the large exchange than in the small. The companies have consistently pointed out that a given person can call more telephones "free" in a large exchange than in a small one, and therefore, the service is *worth* more.

Just how valid this argument is, I have wondered for a long time, for I suspect actually that each telephone has only a certain number of other telephones that it calls often regardless of whether or not it could call 500,000 more if it wanted to. And did you happen to notice that the argument switched over from how much the service *costs* to what it is *worth?* The historical precedent, then, is the first answer.

The second, and more violent argument, is this. This disparity has existed because it has been *fostered* by the large companies, and for two reasons: one, to cover unnecessarily high rates in the large exchanges; and two, because it is the line of least resistance.

The phrase, "unnecessarily high rates" is what causes the violence. They are, as the old saying has it, fighting words. But the people who put forth this answer also have some generalities on their side to "prove" their argument. They point out that at least some of the cost reduction processes of mass production are available to the large exchange, or to the large company, which are not available to the small. Machine billing and accounting for example; expensive equipment for routine preventative maintenance; a specialized labor force in every department; and so on.

These are perfectly good reasons why the cost, per station, of operating a large company should be less than in a small company. They also point out that some of the factors which used to exist and which were used to "prove" that the high per station costs in the larger exchanges were justified, are now much less valid than they were. The disparity in service, for example.

Many telephone people agree that some of the best telephone service in America today is being furnished by the smaller or medium sized companies, and that more and more of

them are getting into that class every day. The amount of plant required to furnish service to the average telephone — that reason is also getting less and less valid. More and more items of "common equipment" are becoming necessary whether the exchange has 500 or 10,000 subscribers. And you could go on to develop this line of thought even more. But let's not get lost.

Again may I state that I do not know of any body of currently existing figures which proves that the disparity in rates between large and small exchanges is entirely justified, and the corollary of that statement is that neither do the figures exist to *disprove* it. Both sides of the argument are using generalities to prove their side.

We have now discussed at some length the first answer to the situation — that it exists because the service in the larger exchange costs more and is therefore justifiably charged the high rate. But the discussion indicates that there is some doubt as to whether or not such a generalized catagorical statement is fully justified by the facts.

Now let's turn to the second answer: that each company stands on its own feet in securing a return and therefore in setting rates. On the face of it, this argument is true enough — that *is* the way commissions deal with rate making.

But more and more, it is getting harder for both the commission and the small company. People in the small exchange of the small company are more familiar with what the large company is charging in its small exchanges, and there is more and more dissatisfaction apparent if these rates are not kept "in line." Thus there is pressure on the small company, which pressure is growing rather than diminishing, not to have rates in its small exchange any higher than the rates of the nearby small exchange of a large company.

The large company is usually Bell, though it could just as well be, and is in some places, a large Independent. The argument is thrown up to us little company folks, "Well if they can pay a $9.00 dividend on the rates they charge why shouldn't you be able to get along on the same rates?" And when you are in a small town and the man using that argument is a sound thinking friend and neighbor of yours, it's not easy to answer him.

Thus, after taking a close look, it is not hard to see that both the main arguments used most often to justify the disparity are open to considerable question. What's the answer then?

Well, Neighbor, it's not easy to say. As I indicated at the beginning of this article, I am indebted to Mr. John Brady for putting new emphasis on this problem. In his speech, he didn't answer it either. There are some suggestions which I will have later on — for this is the first in a series of articles which will make some small attempt to explore the relationships between large and small companies.

This is a subject that a lot of people have been talking about, and more or less behind closed doors, for some time now, and it seems to me that the problems need to be pointed out so that we can all go to work on them. So, though I will have some suggestions — and they will be just that, since I certainly will not dignify them by calling them "solutions" — my main point will be to try to dig into the problems and bring them up into the light and into focus, where a lot of minds, far better than mine, can go to work.—THE END.

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Vice President
American Tel. & Tel. Co.

FOR YEARS WE have been in a seller's market. We haven't had to go after customers. They have been coming after us, and in some cases we have met their wants, and in other cases we have not. Now conditions have changed. The general tide of the economy has ebbed a little — quite a bit in some places — and it seems likely that whatever the time of the upturn, we aren't going to be riding the same kind of wave in the future that we have been riding in the past.

B. T. MILLER

What does that mean to us? Well, here are one man's opinions, for whatever you think they are worth.

I think we have a whole raft of new opportunities right in front of us — but I also think we've got to climb aboard them and not wait for them to drift our way.

Where does the process begin?

Doesn't it begin in our own fundamental management attitude?

Don't we need first of all the aggressive, determined spirit to go after the market and get our full share of the customer's dollar?

Two things we know. One is that this country is adding a quarter of a million people every month. Every 30 days the national market is increasing by a number equal to the population of Ft. Wayne and South Bend combined.

The second is that the public's discretionary spending power today—what people have left over after necessary fixed expenses — is up four times over what it was in 1940.

Now let me quote you a couple of things of the kind I'm sure you've been reading in the papers these days.

Here is one:

"Industrial designers turn out innovations to pep up current sales . . . With competition stiffening in most industries, many a manufacturer is calling on industrial designers to create products that work better, feel better, taste better, look better — and hence, sell better."

Here is another:

"America's steel industry is showing the world a new face . . . The producers are turning out an impressive roster of new products aimed to catch customers of all kinds."

And here is a quote from a down-to-earth economist — Peter Drucker — that I think is worth pasting in our hats. He says:

"There is only one definition of the function of a business: Its function is to create a customer . . . Only when the action of businessmen makes a want-effective demand is there a customer, a market. The action may be advertising, salesman-

ship, or the invention of something new. In every case it is business action that creates the customer."

Are we going all-out to create customers? Are we creating wants?

I'm not thinking only of selling or sales promotion. I'm thinking of the whole gamut of attitudes and actions that are wrapped up in what I'd call the merchandising point of view.

Are we out to sell merely telephones, or "stations" as we so drably call them — or are we out to sell the greatest possible use to the most people of the whole line of services we render? And to so sell them that they will be of the greatest possible convenience to the customer. If a service isn't located at a convenient spot it won't be used, and if it isn't used it isn't indispensable.

Are we content to worry about possibly losing some of our so-called "marginal" customers, or are we coming up with the best ideas for keeping them. How do others keep their customers — say *Saturday Evening Post* or *Wrigley's* gum?

Do we realize that more families have two automobiles today than two telephones — and have we come anywhere near finding out all the reasons that cause our customers to want extensions?

Are we educating the business community to think first of the telephone company whenever they have *any* communication need or problem, whether it be intercommunication, a signal or telemetering circuit, or anything else?

Do we show our wares where people can see them — in our offices, in our windows, on our trucks, in exhibits and displays? And do we put price tags on them?

Here is a list of names: Capri, Bel-Air, Country Squire. You know what they are: automobiles.

Here is another list of names: Combined set, retractile cord, jack and plug.

See what I mean? Do these tags make people want to buy anything more than they *need?* Prosperity springs from wants — not needs. It would be a drab world indeed if people only had what they needed. Yet I think we have not passed the stage of providing only what people need in the way of communications service.

Let's go merchandising. It's going to be a lot of fun — and profitable.

"You're going to be a big help to me this year . . . Seems everyone wants telephones."

I know of a boy who found a wallet with a $10 bill in it; also the name of the man who had lost it. He was a good boy so he hustled right off to locate the owner. The only stop he made was at the bank, where he got the ten spot changed into ten ones. That's merchandising.

I heard of a Commercial girl down in Cincinnati, who met a customer who came to the business office to order her service disconnected. The customer said it was message rate service and she wasn't home enough to use it herself and her brother ran the bill up too high. Our representative pointed out the values of the service, and before the customer left she had sold her a regrade to unlimited service.

That's merchandising too. Our representative found something else to sell the customer and it proved to be attractive. This kind of thing we can do and do well — if we have the right attitude. Shall we call it "the merchandising attitude?"

Now let me try to sum up briefly. I think we have not only the opportunity but the need to take stock of our management job from two or three standpoints.

First from the standpoint of initiating dynamic action to make happen what we want to happen.

Second, to create markets, desires, and wants; in other words, as Drucker says, to create customers.

Along with this I include proper action on pricing; that is, adjusting rates when necessary to meet changing conditions, to develop new services, and to prevent losses in service.

To the extent we accomplish these objectives, we are sure to earn public approval, we can make economic swings less difficult, and we shall surely develop imaginative, aggressive, forward-looking people — and a more profitable business.

And as one final thought, I am sure that this kind of program will itself make a tremendous contribution toward maintaining, and I would also say, increasing, the personal nature of telephone service. A vigorous merchandising attitude and a thorough merchandising job will help us no end in keeping our human selves always way out ahead of our dials, our switches, and all our machines.—(*Adapted from a paper presented at the* 1954 *convention of the Indiana Telephone Association.*)

"Public Relations"

By PHIL SHERIDAN
Supervisor of Publicity, General Tel. Co. of Indiana

PUBLIC RELATIONS is the responsibility of management to execute, through all forms of expression, policies formulated to earn public respect and understanding.

Under that definition, public relations is a two-fold task: to produce more and better public understanding of the company's aims, policies and problems and to let the public know of company accomplishments.

Public relations in the telephone field centers on the theme that the public needs to know what is involved in the operations of the utility both for the better understanding of the company's problems as well as the public's own role in telephone service.

As the country grows, public relations must grow, geared to the increasing demands of the public for a better insight into the operations of the companies which serve it. A good public relations program can not only tell the public what they want to know but also tell them what the company wants them to know, thus satisfying the demands of the public for information and meeting the needs of the company for explanation of its problems, plans and policies.

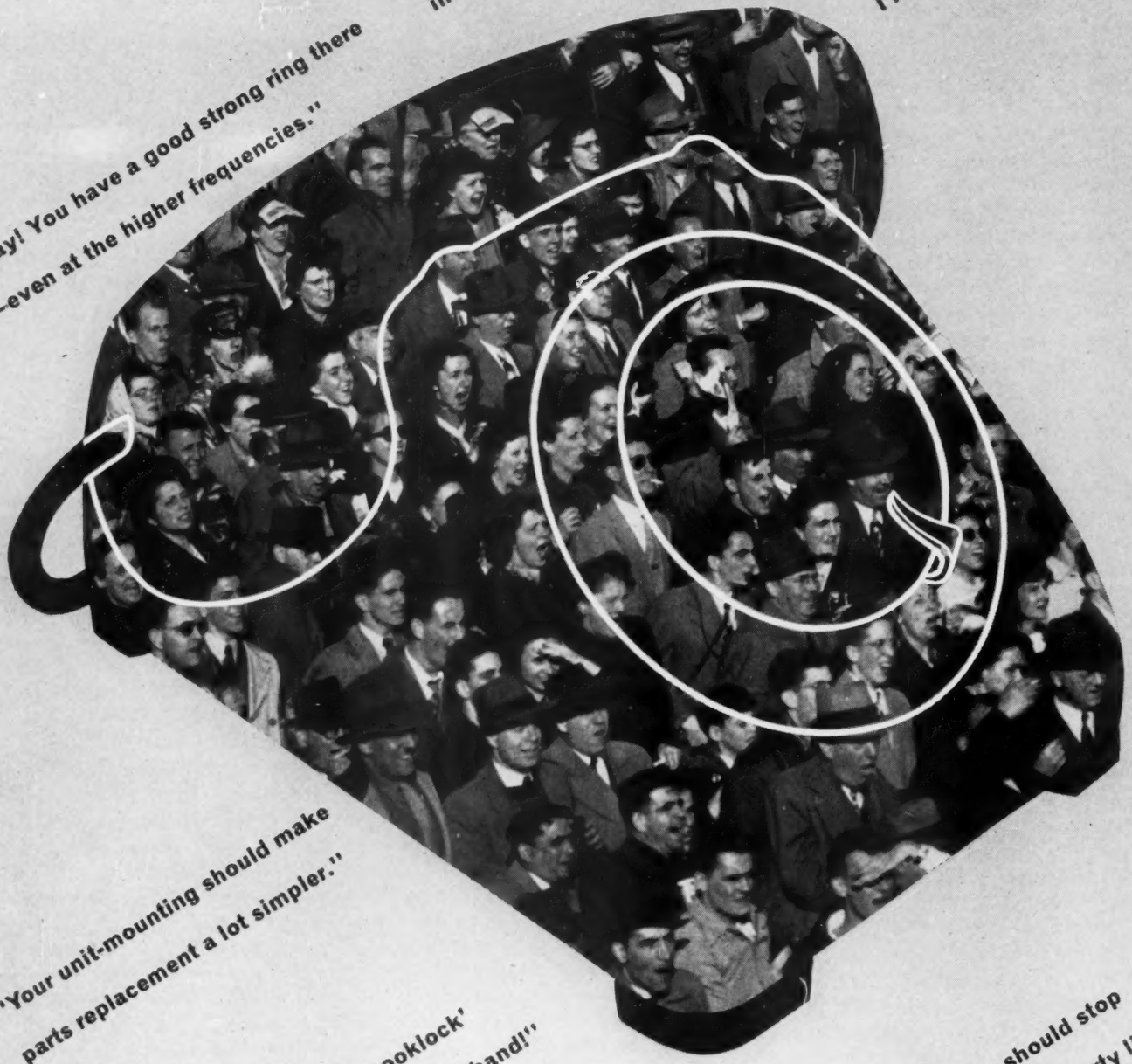
In this line, the United States Independent Telephone Asosciation (USITA) has launched an extensive program of national advertising to

"Best looking telephone I've seen anywhere!"

"That 'walking handset' will save me $300 a year in off-the-hook trouble calls!"

"How easy the dial is to use! I like the mounting angle."

"Say! You have a good strong ring there —even at the higher frequencies."



"Your unit-mounting should make parts replacement a lot simpler."

"That 'installer's hooklock' gives the installer a third hand!"

"Type 80's a real beauty!"

"Type 80's hooklock should stop disturbance of callers on party lines."

"The long-and-short-loop adjustment 'tailors' the telephone to the line."

"A screwdriver's the only tool you need? . . . wonderful!"

Spontaneous, enthusiastic response greeted Automatic's new Type 80 Monophone at its first public showing. Here, at last, was the instrument telephone men had been hoping for.

It's Type 80 Monophone —by *Popular Acclaim!*

It was a heart-warming experience, the way telephone men received our new Type 80 Monophone!

They came, looked at Type 80, tried it — and then told us how much they liked it. *Here*, they said, was the telephone they'd been hoping for — the telephone with the practical features they'd always wanted.

Each man found something about Type 80 that particularly delighted him. And of course, that's not surprising — for we included in its design the features telephone men had *said* they wanted! Some of these features pay off directly in terms of time-savings on installation and maintenance. Others pay off indirectly — *but just as surely* — in terms of pleased subscribers who use the telephone more and more.

Either way, Type 80's add up to money in your pocket. So order today. Use the handy ordering guide in Circular 1841, inserted in Oct. 9th *Telephony*. Or, write *Automatic Electric Sales Corporation, 1033 W. Van Buren St., Chicago 7*, for a copy today!

AUTOMATIC ELECTRIC

acquaint the public with the growth and future plans of the constantly-enlarging Independent telephone industry.

The program, started early this year, is a joint project of all Independent systems, on a national scale, utilizing national advertising in newspapers and magazines.

Because the service furnished by the telephone industry fulfills one of the basic human needs — communication by speech — it becomes even more a responsibility of management to establish good human relations.

That responsibility begins at home — better relations with our employes, with the stockholders, with the customers and with potential stockholders and customers.

In General Telephone Company of Indiana, Inc., we are putting into action a progressive and informative public relations program through several means of communication.

We use extensive newspaper advertising designed to inform the public of our plans, policies, problems and personnel activities. In more direct contact we have placed posters in commercial offices, we use bill inserts for customer information and issue letters to stockholders.

Publicity-wise, we keep the public informed thorugh articles on our construction program, station gains, personnel changes and company progress on both local and state levels.

More specific channels of information include our employes magazine which is circulated to all employes, member companies, stockholders and business and civic leaders in our exchange areas; the annual report which reaches all stockholders and is available to any interested individual; audio-visual aids programs of movies, displays and demonstration units; open house programs in which invitations are issued to the general public to visit and inspect telephone facilities and personal contact — our employes taking part in the affairs of the communities in which they work and live.

In conclusion, public relations today is growing in importance as a link between business and its customers; it is the principle means of keeping the public informed of our present activities and future plans. As such, it has become the responsibility of top management and an ever growing part of the over-all industrial picture.—(*Adapted from a paper presented at the* 1954 *convention of the Indiana Telephone Association.*)

Utility Growth

By VERNE E. SCOGGINS,
California Public Utilities Commission

THE THEORY of regulation which grants a degree of monopoly, carries with it the compulsion to endeavor to render service in keeping with demand. We have had instances in California where single utility companies during recent years have had to finance and install service facilities equivalent to the total needs of entire states in our nation. For example, there are five states in the Union with less population than the total number of new customers two Southern California gas companies have endeavored to provide services for during the past six years.

V. E. Scoggins

Since July 1945, California utility companies in their effort to keep pace with the state's needs, have marketed almost $3,500,000,000 in new securities. We have been told that these same companies will add another $500,000,000 to their financing programs this year. Over 90 per cent of this tremendous sum which amounts to more than $290 for every resident in the state, has gone for new financing for gas, electric, telephone, and water companies.

ADVANCE ORDER FOR OLD RELIABLE!

LET'S SEE - BY 1975 THERE'LL BE 60,000,000 OF US NEW CITIZENS - WE'LL NEED BILLIONS OF DOLLARS WORTH OF GOODS AND SERVICES - AND 22,000,000 NEW JOBS!
U.S. BUSINESS ENTERPRISE
7000 DAILY GROWTH IN U.S. POPULATION
Chamberlain

Financing on this scale has had a tremendous impact upon the economy of the state. It is a sign that phenomenal things have been happening and are still happening. Some of the figures are almost too large to comprehend. Such, for example, as the report that money invested in the plants of telephone, electric and gas utilities in the state jumped from $2,000,000,000 in 1945 to $4,200,000,000 last year. That means plant investment has more than doubled in eight years. It also means that utility management, having gone into the money market for additional funds repeatedly, is now operating under the scrutiny of more investors than ever before.

We at the Commission are fully aware that all this construction and expenditure of postwar dollars — all this building during a period of inflation — constitutes a difficult hurdle in the path to rate stability. As a matter of fact, the average investment per customer of some of our utilities is likely to continue to rise for several more years. Plant investment per customer of the electric companies in California stands today at $703, compared with $567 in 1945. Plant investment per gas customer stands at $247, compared with $178 in 1945. Telephone customer plant investment is around $311 today, compared with $271 in 1945. Since June 1st of 1953, the Commission has issued 30 decisions granting telephone companies authority to issue additional securities.

In all modesty, I think the Commission can lay claim to having been helpful in creating an atmosphere which has encouraged the successful marketing of the securities required for this great development. This new money has had to come from investors, for it certainly would not be proper for rate payers to be required to build a surplus of sufficient size to pay for such plant expansion. The money had to come from investors, large and small, institutional and individual. The California Commission has worked diligently to keep such investors aware of where they stand and it will continue to insist on the filing of complete company reports from which investors can draw reasonable conclusions as to the soundness of their investment.

These tremendous offerings of California securities have had to

withstand rigid analysis. It has been interesting to me to observe some of the measuring sticks applied to these public utility offerings, and particularly by those professional buyers who represent the great institutional investment houses which have developed in our country during recent years.

You will find those buyers studying with care the service area involved, the stability of the earning power, and the management record of each utility. They want to know whether a company has kept pace with the growth of the area which it holds out to serve, and whether that growth has been transferred into stability in stock value. They want to know about competition and about the impact of taxes. And they want to know about regulation, for most such buyers consider too lenient regulations as dangerous as too strict regulation.

Indulgence in extremes, they contend, will lead eventually to change. And, of course, these same buyers devote time to a study of the supply of water, labor, and the prevailing atmosphere in regard to public ownership, and quite naturally, the payout and dividend policies of the company. There are, of course, other factors involved, but these, I think, are sufficient to illustrate that the securities of California public utilities have been and are being subjected to careful scrutiny by the professional buyers of the country and are in general meeting the test.

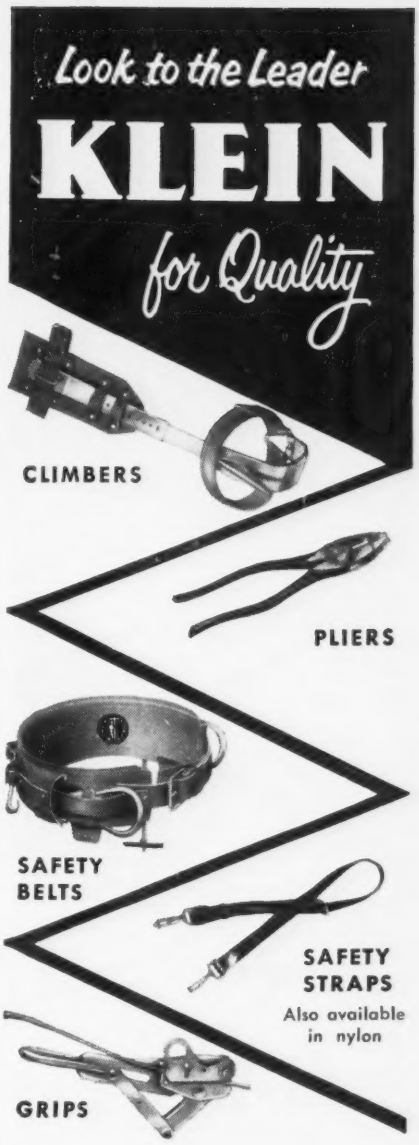
The California Public Utilities Commission has found on many occasions of late that the rule of reasonableness called for rate revisions. The increases have been allowed chiefly in recognition of increased costs of operation — cost factors which all of us know have soared during recent years. In its decisions the Commission has placed its reliance upon the great emphasis given the phrase 'reasonable return' by the Supreme Courts of both the state and nation. Within this so-called zone of reasonableness the Commission must always strive to fulfill its obligations to management, to consumers and rate payers, to investors and to the general public. To discharge this responsibility objectively and efficiently in these changing times is no small task. It is a continuous challenge that requires the loyal and sincere

"Ticket? Oh, no sir, . . . I just wanna use your telephone."

application of the talents of many specialists in the various phases of utility operation.

Although the cost of public utility services has tended upwards, I believe it only fair to say that a measure of improvement in service has come with the trend. This I know regarding Californians and their utility services. Good service has a tendency to minimize complaints about rate increases, whereas poor service does just the opposite. Rate payers frequently come to Commission hearings and voice far greater concern about service than rates. As a matter of fact, a rate hearing in itself seldom attracts a crowd, but a proposal to curtail service frequently fills the courtroom.

Each type of utility and each utility company — be it telephone, gas, electric, water, or transportation — provides a separate problem for Commission consideration. For some, the going is rough. For others, trends continue favorable. Generalizations can seldom be applied. It is the Commission's policy to give the public as well as each utility company a full opportunity to present its problems to the Commission to the best of its ability. Ever present in the Commission mind is the necessity for recognition of due process of law. But equally present is the determination to develop all the basic facts, for it is on the broad basis of fact that reasonableness can best be determined. I believe it is both axiomatic and proper that any decision that is not within the zone of reasonableness will not long endure.— *Adapted from a paper presented at the* 1954 *Convention of the California Independent Tel. Assoc.*



HERE'S SAFETY—SERVICE

you can always depend on. For Klein tools and equipment are designed better for your jobs—made of the finest materials—individually tested and inspected. Look for the familiar Klein trade-mark—serving the electrical industry "since 1857."

ASK YOUR SUPPLIER

Foreign Distributor:

International Standard Electric Corp., New York

Write for your free copy of the Klein Pocket Tool Guide Today!

Mathias KLEIN & Sons
Established 1857 — Chicago, Ill., U.S.A.
7200 McCORMICK ROAD • CHICAGO 45, ILLINOIS

Anchor expanding bar (shown above) is a real helper. Bar hooks around anchor rod so heavy casting is guided to tamping position.—(Courtesy of "Chance Tips.")

Tips from the field—

How To-Do-It Suggestions

Collected by **JOHN G. REYNOLDS**

"Old Timer" Talks About Salvage

ECONOMY is a big and important word to telephone company owners and yet the other day we had a conversation with an old timer who said — "A lot of good, useable equipment hits the junk pile on any outside plant rebuilding job . . ."

We let "old-timer" talk and here are a few of his ideas: —

(1) When wire can be reused, a divider may be attached to the take-up reel and used to reel up two coils of wire at one time. To save time in reeling the wire, two full one-half mile of coils may be reeled up at one time, old type twisted splices being cut out and the wire ends respliced with new compression or rolled sleeves. If the full length of the wires cannot be reeled up due to interference by rough terrain, the wires may be cut to convenient lengths and the wires respliced, as each length is reeled on, the truck being moved up each time to pick up the next length. If the job is big enough to warrant the use of a 5-wire reclaiming reel, much time and labor can be saved by reeling up five wires at a time.

(2) After taking out the wires, the insulators are unscrewed from insulator pins or brackets and placed in a canvas bucket for lowering to the ground. Next, the brace lag screws are removed and the braces swung into contact with the crossarm below the through bolt. The nut on the through bolt is turned out and the crossarm pulled off and lowered to the ground. The bolt is then driven out. If the bolt is salvageable, putting one nut back on the bolt end, before striking the bolt, will protect the end threads from damage.

(3) Good wood pole brackets can be quickly removed by first hitting the bracket near the top with a striking hammer to force this end over to the pole. The bottom nail will then come out part way and can be bent over with the hammer. Again striking the top end will cause this nail to come out completely. The bracket then can be turned sufficiently for the top end to clear the pole. Hitting the top end from the pole side will disengage top nail and the bracket. The bracket should

be held with one hand during this operation, to keep it and the nails from flying off the pole. Both the bracket and the nails should then be placed in the canvas bucket. This procedure does not harm brackets that are in good condition.

(4) Guys are removed by unfastening the guy clamp at the anchor and, after the pole is lowered to the ground, the guys can be unfastened from the pole.

(5) Screw anchors are salvaged by turning them out of the ground. If a winch is available, it can be used to pull light anchors out of the ground. Heavy anchors need to be dug around sufficiently to loosen the anchor before the winch can be used to lift them out. An earth borer, or a pole hole digger, can be utilized to dig down by the anchor rod, and the anchor and rod can then be pulled out with the winch.

(6) Depending on the length and weight of the poles, a pole jack, pole derrick, or a gin pole or winch may be used to remove poles. Small poles can be taken out by digging around the pole and using a carrying hook to loosen and lift out the pole. As a rule, time and effort is saved by using a pole derrick or a pole jack to lift out the poles.

When a pole is to be removed by means of mechanical apparatus, care must be taken to avoid the possibility of the pole breaking at the butt and toppling over. If the pole does not appear to have sufficient sound wood in its butt to be safely handled with a winch, it is better to cut the pole off at the base and remove the butt and upper portion of the pole separately.

Murphy (One Man) Cable Tester

THE MURPHY Engineering Laboratory, 4419 Tulsa Avenue, Houston, Texas, is producing a new type of cable tester that enables one man, without a helper to identify pairs in any size of non-working cables.

The equipment consists of a meter unit (*Figure* 1) and a special terminal board with resistance network connected to binding posts (*Figure* 2).

The terminal board has two vertical rows of binding post numbered 1 - 0, and designated "T" and "R" respectively. The tip conductors of all the pairs are connected to the left hand or "T" row of binding posts and the ring conductors of all the pairs are connected to the right hand or "R" binding posts in the order given below. It will be noted that the tip side of each pair will be connected to a lug whose number is the "tens" digit of the pair number. The ring side of each pair will be connected to a lug whose number is the "units" digit of the pair number.

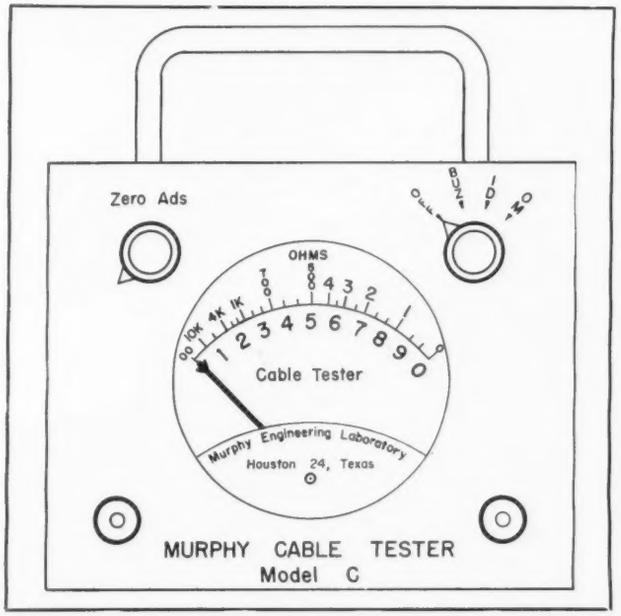


FIGURE ONE: —— Meter unit for Murphy (One-Man) Cable Tester.

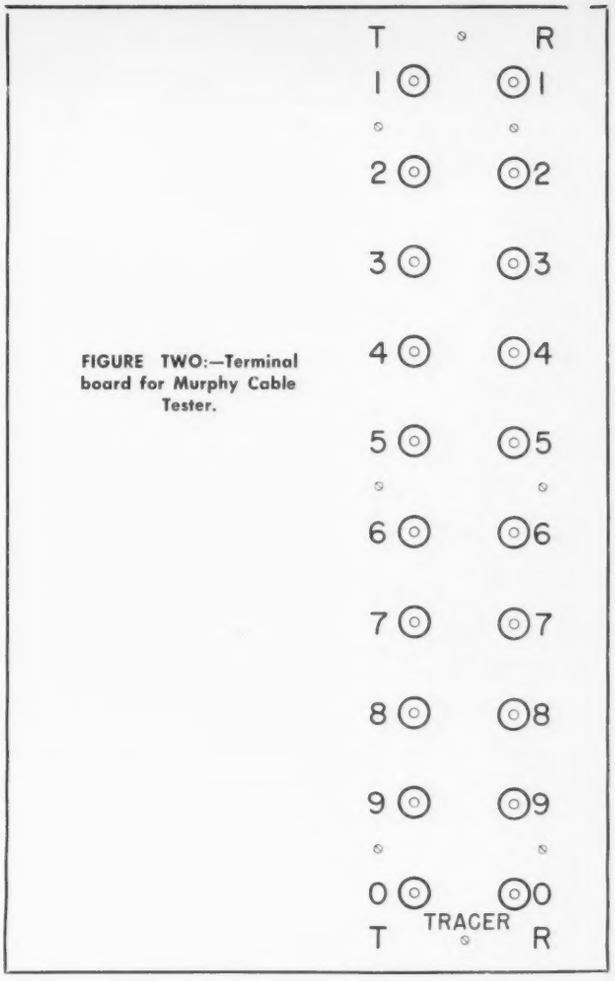


FIGURE TWO:—Terminal board for Murphy Cable Tester.

The terminal board is used at the outer end of the cable as follows:

(a) Connect the Tips of all pairs from 01 to 09, as well as any even 100 pair to the T lug marked "O," then the Tips of all pairs from 10 to 19 to the "T" lug marked "1," the Tips of all pairs from 20 to 29 to the "T" lug marked "2" and so on through all the pairs until the tip side of every pair has been connected to a "T" lug whose number corresponds to the "tens" digit of the pair number.

(b) Connect the ring side of every pair whose "units" digit is 1, that is, pairs 1, 11, 21, 31, 41, etc., to the "R" lug marked 1. Connect the ring side of every pair whose "units" digit is 2, that is pairs 2, 12, 22, 32, etc., to the "R" lug marked 2.

(c) Connect the Tracer pair, regardless of its actual pair number, to the "T" and "R" lugs marked "O" and "O." This pair is to be used at each location for calibration purposes.

At the cable opening, connect one post of meter unit

The great gift of convenience

It's wonderful for any member of the family—an extension telephone, to save time and steps. And it's good for telephone companies everywhere when such gifts are given. They make telephone service still more convenient, increasing the satisfaction of telephone users. The extra sales mean additional revenue for telephone companies as well.

That's why the December advertisement across the page suggests the unusual gift of extension telephones.

"Bill thinks of the nicest things.
He gave me an extension telephone
for the kitchen and one
for the bedroom too."

"Thanks ever so much, son,
for the extension telephone.
It's a big comfort to have
it close by in my bedroom."

HERE'S SOMETHING NEW
AND DIFFERENT FOR CHRISTMAS

Give an extension telephone to someone you love

Have you been searching for something new and different in a Christmas gift? Something that is distinctive, yet practical, and will last the whole year through?

You couldn't do better than an extension telephone for Mother or Dad, son or daughter, or Grandma and Grandpa. For 365 days and nights it will save steps, time and effort. And it's mighty handy, too, in an emergency.

If you'll order in time we'll do our best to install the extension telephone before Christmas.

If that isn't possible, we'll deliver the telephone, attractively wrapped, so you can put it under the tree with the other gifts. Then we'll come around after Christmas and install it in bedroom, living room, or kitchen, or wherever you wish.

The cost is small—just pennies a day for each extension telephone. Just call the business office of your local Bell telephone company.

BELL TELEPHONE SYSTEM

"My wife sure knows how to pick
out the right Christmas gifts.
Gave me an extension telephone
for my hobby room downstairs."

"You'll never guess what
Dad gave me! A telephone
of my very own—
right in my room!"

to the ring side of the Tracer pair and the other post of the meter unit to the tip side of the Tracer pair. Using the knob on the meter unit panel, adjust the meter reading to "O." This adjustment compensates for the loop resistance of the cable pair back to the terminal board and is effective up to a loop of approximately 4500 ohms.

Remove the lead from the tip of the tracer pair to be identified. The meter will read the Tens digit of the pair number. Then touch the pick to the ring side of the pair under test. The meter will now read the Units digit.

For example, if the tip conductor in 3 above gives a reading of 2 on the meter and the ring conductor gives a reading of 7 then the pair number is 27. Pair 1 will read 01, etc. Even hundreds pairs, as 100, 200, etc., will read 00, as will also the tracer pair. The tracer pair, of course, can be distinguished from the other pair reading the same on the meter by the special coloring of the tracer pair.

Even a 3636 pair cable can be connected to a terminal board and tested with the meter unit to identify every pair in the cable, since the color code designates the hundreds group and the test set will identify the pairs within each hundred.

The Model C cable tester is really three test sets in one. A four position rotary switch changes the set from the basic cable pair identifier to a Buzzer Continuity tester or to an Ohmmeter as the rotary switch is thrown from one to another of the four marked positions: OFF — BUZZER — IDENTIFIER — OHMMETER.

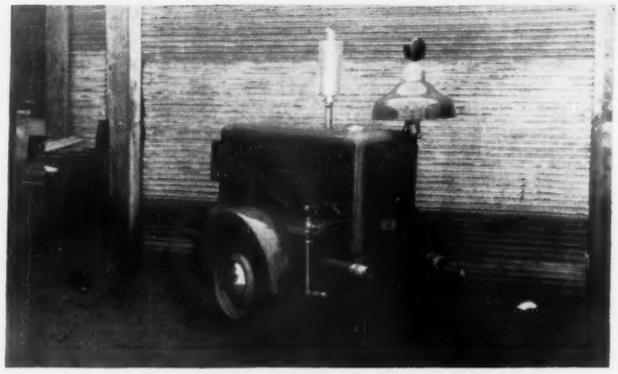
The Buzzer Continuity Tester is used to buzz out terminal tails and is also used by two splicers when "cutting in" a piece of cable, as well as for other continuity checks such as checking cross connections on distributing frames or in cross connecting boxes.

The Ohmmeter is used to find the approximate location of a short, ground, or a cross that has been encountered while making other tests. The scale is especially adapted to the range most needed in cable work, with 500 ohms near the center of the scale. When using the ohmmeter, the meter must be adjusted to zero ohms while the switch is thrown to the position marked OM (Ohmmeter) and the two test leads are shorted together. Then the two leads are connected across the circuit to be measured.

The meter in the new cable tester is a Triplette 221-PL with unbreakable plastic front that lights the dial from all sides. The scale is 28% longer than in standard meters, although the meter is the same size as in the earlier models. The indicator hand is of the knife edge type so that it can reach across the two scales on the meter face without obscuring either of them. There is no metal rim around the meter face and the scale can be read from any angle. The numerals used to indicate the digits of the pair number are larger and heavier so they can be easily read from a comfortable distance.

New Mobile Power Unit

THE S AND G Manufacturing Co., New Orleans 10, La., is marketing a new mobile power unit for use by telephone and telegraph companies. Views of this unit are shown in *Figure* 3.



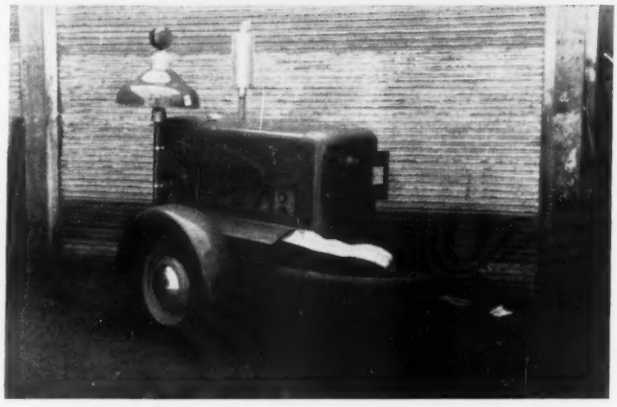


FIGURE THREE:—Above — Rear view of Mobile Power Unit. Below —Front view, showing method of carrying discharge hose for pump unit. Note light shade surmounted by blinker light on telescopic mast.

The mobile power unit, Model MPU, is a trailer mounted, slow speed (1200 RPM) electric plant to provide portable power where it is required. Ideal for many purposes around construction work, the mobile power unit is light, easy to handle, completely maneuverable, and gives the power needed right on the job itself. It has an output of 1500 watts, 110 volts, DC, as well as a 6 volt independent circuit which is equipped with a 6 volt battery charging generator and a heavy duty 6 volt battery. There is also a 2″, 2500 Gallon Per Hour diaphragm pump driven from the same engine that drives the generator through an electric clutch for remote control operation.

This unit was originally designed and developed in cooperation with the engineers in charge of equipment for the Southern Bell Telephone & Telegraph Co. It was first used by telephone crews for lighting cable splicing, operating solder pots and irons, and electric blowers for ventilating manholes. The diaphragm pump is used to pump out manholes when seepage accumulates. The remote control switch is equipped with a push button for buzzer signaling, and this feature is used extensively by telephone crews for manhole to above-ground contact.

The unit has a complete switchboard with five twist lock receptacles for 110-volt circuits as well as three 6-volt twist lock receptacles for the 6-volt circuits. The remote control voltage down in the hole is low voltage, or 6 volts, which would not cause shock to an operator. The 6-volt receptacles are for the purpose of furnishing light in the manhole in the event of trouble with the electric generator. The 6-volt battery would supply sufficient light to probably run the job out during the

night period. The 6-volt service is also used for the buzzer and the electric clutch which operates the pump.

The mobile power unit is furnished with one 15 ft. length of suction hose and one 15 ft. length of discharge hose, each with quick detachable couplings so that the hose may be removed from the pump without any special tools. They are carried on the trailer in hose racks which are installed between the sheet steel house and the fenders.

A telescopic mast is provided on one end of the mobile power unit which has 20″ shade with a 300 watt, 110 volt lamp for illuminating the working area. Directly on top of the reflector is a 6 volt red blinker light which flashes on and off showing that there are men working, thereby keeping motorist advised of the location of the equipment and men. The telescopic mast, when raised to working position, is about 8 ft. above the ground and when closed is in a low position for trailing.

Not only portable but light and extremely easy to handle, the mobile power unit is totally enclosed in a metal house and can be operated without removing the side panels. One man can hitch the unit to any trailer hitch. The total weight of the unit is 1180 lbs. but only 100 lbs. is on the towing end for lifting. Well-balanced and completely versatile for all types of construction work, the mobile power unit is considered to be ideal for work where portable power is required.

Combination Storage Cabinet for Unattended Dial Offices

TELEPHONE men assigned to the maintenance of unattended dial offices will find the combination storage cabinet and fuse box an excellent means of storing various items needed in the operation and maintenance of the office. This cabinet (*Figure* 4) is mounted on the wall at a convenient height in an accessible location, generally near the main distributing frame where the jumper wire, heat coils, protector blocks and soldering iron and solder will be the most needed.

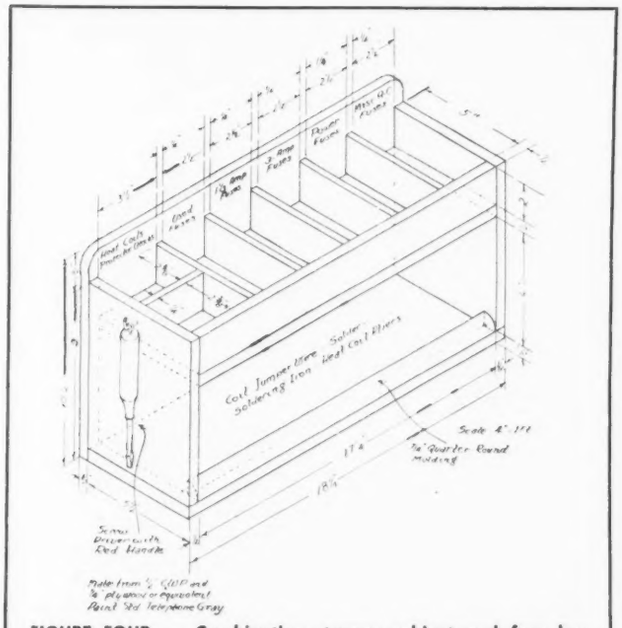
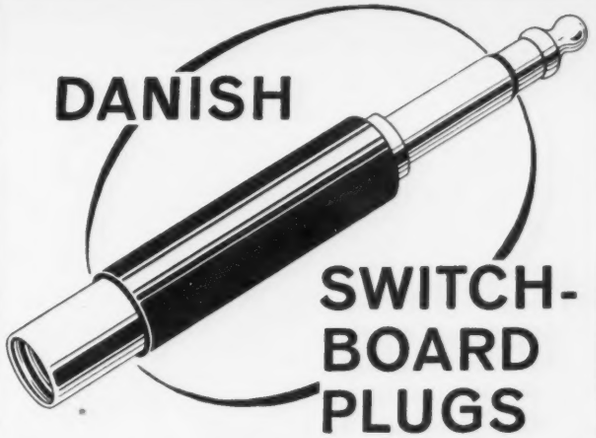

Cord, Jumper Wire, Solder
Soldering Iron, Heat Coil Fillers
Scale 4" = 1'-0"
¾" Quarter Round Molding
Screw Driver with Red Handle
Make from ¾" Stock and ¼" plywood or equivalent. Paint Std. Telephone Gray

FIGURE FOUR: — Combination storage cabinet and fuse box for unattended dial offices.



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Washington Bureau Reports

By ROLAND DAVIES & FRED HENCK

***SHORTAGE of qualified telephone engineers slows progress of REA's telephone loan program . . . 44.3% of U. S. farms have telephone service . . . U. S. telephones hit new high of* 51,900,000 . . . *Plant investment reaches* $15,700,000,000**

THE CRITICAL shortage of qualified telephone engineers, both in and out of the Rural Electrification Administration, is seriously hampering the progress of the REA's telephone loan program. Unless it is corrected, the probability is that the agency will fall well below the $75,000,000 total telephone loan program authorized by Congress for the current fiscal year, ending next June 30.

At present, REA, competing with higher-paying communications, electronics, and electrical engineering posts in private industry for young engineers, has 12 positions open for which it has the funds but no one to fill the jobs. The result is a serious, though not necessarily critical, hole in REA's ability to process loan applications.

More of a problem, Assistant Administrator J. K. O'Shaughnessy, in charge of the telephone program, told TELECOMMUNICATIONS REPORTS, Washington correspondents for this publication, is the relative lack of participation in the program by consulting engineering firms, on which REA relies to do pre-loan survey and engineering design and to lay out improvement or expansion of telephone facilities with REA funds.

There can be no doubt that the shortage of qualified consulting engineers to handle REA jobs is the biggest single deterrent to what REA officials see as their part of the job of "getting telephones ringing on farms."

If the agency is to come close to lending the $75,000,000 authorized by Congress in the fiscal year ending next June, the engineering problem must be alleviated within the next few months, Mr. O'Shaughnessy declared. It takes several months after an engineer is on the job to carry out the pre-loan work required before an application is fully accepted by REA. From that point, approval of the loan takes a very short time.

"We now have 122 consulting engineering firms on our mailing list for telephone work," Mr. O'Shaughnessy pointed out, "compared with 300 at the peak of the electrification program. Of those, only 78 are actively engaged in REA projects." He went on to declare that at least several of the 78 have taken on jobs they are apparently are not qualified to do, with the result that other firms must be brought in later, adding both to expense and time lag.

Originally, REA approved loan allocations without extensive pre-loan activity, with the result that frequently it was found later that supplemental allocations were needed. Now, the engineering design, area coverage survey, state commission approval of the loan where required, agreements with connecting companies for operator assistance or extended area service where feasible, and collection of equity capital are required before REA accepts the loan application. At that point, the agency can go ahead and approve the application with full knowledge, and the money is ready to begin actual construction.

"One of the earlier complaints by consultants about REA jobs was that they didn't get paid quickly, under our previous regulations," Mr. O'Shaughnessy recalled. "Now we authorize payment for pre-loan engineering work promptly out of equity funds, and there should be no deterrent there."

Allocations Drop Off

BEST INDICATOR of the slowdown in REA telephone loan activity resulting from the engineering shortage is in the comparative figures for loan allocations made. From July 1 to Nov. 5 of this year, the total allocated was $17,040,000. Last year, for the same period, it was $25,878,000.

Applications also have shown a sharp drop-off, although it is pointed out that the figures are not directly comparable, since the new procedure of requiring pre-loan work first went into effect in the spring of this year. In any event, the comparative figures for applications, from the start of the fiscal year to early November, are $11,326,000 this year and $21,503,000 in 1953.

REA spokesmen point out that there virtually is no limiting factor on the program in terms of Congressional appropriations. Experience in the past generally has been that Congress is willing to approve more loan funds than REA believes it can handle, taking into account the engineering problem. Administra-

tive money allocated by the legislators also has been adequate.

"Consulting engineering firms should realize that this program is here to stay, and that both political parties want to strengthen it, particularly since the rural electrification job is well on the way to completion." Mr. O'Shaughnessy said. 'We don't care who provides telephone service to farmers as long as they get it, but we have a directive from Congress and we're going to do our part of the job as long as it is needed."

He explained that there is no apparent avenue open to do the engineering work except through the consulting firms, since few of the borrowers have qualified engineering personnel of their own.

At present, Mr. O'Shaughnessy pointed out, REA has about 60 applications on which pre-loan engineering work should be going forward. On the basis of the current year's average, they would total about $25,000,000 in loan allocations. In addition, there is another $62,000,000 in preliminary applications on hand which appear to justify further study as to their feasibility.

The engineering shortage has been a major contributor to the fact that of the approximately $200,000,000 allocated in the farm telephone program to date, approximately $128,000,000 still has not been advanced to borrowers. In the loan agreements made before the present pre-loan procedures went into effect, many of the borrowers still have not complied with the loan contracts in getting survey and engineering design work done, as well as in collecting equity, obtaining state commission approval, and other requirements. Since the new plan began operating, some borrowers have not had engineers available to supervise installation and construction work.

Mr. O'Shaughnessy stressed his belief that engineering fees authorized by REA are fair and reasonable. He commented that while some engineers have protested that the fees are not high enough, many borrowers say they are too high, which leads him to the conclusion that they are probably "about right." The fees are based on detailed studies, he added.

But he declared that the agency is flexible-minded enough to revise the fee schedule if it can be shown that the engineers are left at a disadvantage.

For the agency's staff, discussions with the Civil Service Commission have led to liberalization of CSC rulings about how much engineers starting with the agency can be paid, and in what grade classification they will be placed. Nonetheless, private industry still pays more to graduate engineers, and while REA has gained 21 new junior engineers during the past year, it has lost 13 to other posts during the same period.

44.3% of US Farms Have Telephone Service

ANOTHER Agriculture Department group, the Crop Reporting Board, has announced that on July 1, the percentage of US farms with telephone service — 44.3% — was the highest on record. The survey showed that the total number of farms with telephones, about 2,400,000, was below the 1920 figure of slightly more than 2,500,000, when there were many more farms. The comparison with 1920 has been used frequently in the past by federal rural telephone program advocates.

Local exchange rates paid by farmers averaged $3.33 monthly, compared with $2.05 in 1947, or an increase of 3% above a year earlier. Total monthly charges, for both local and long-distance service, averaged $4.92 per farm, compared with $4.95 a year previously, indicating slightly reduced average use of long-distance service. It was emphasized by the board that "For the most part, the increase in local bills was accompanied by an increase in quality of service."

According to the service, about 4% of all farm telephones on July 1 were on a private line, 20% were on two-to-four-party service, 43% were on five-to-eight-party lines, and the remaining 33% on lines with nine or more parties. In the past year, it was brought out, there has been a decline in the percentage of farmers on lines with nine or more parties.

By type of service, it was reported, about 35% of farmers had magneto service, 20% were on common battery manual switchboards, and 45% had dial service.

U. S. Telephones Hit New High of 51,900,000

ANOTHER report on telephone service available has come from the Bell System, which issues quarter-

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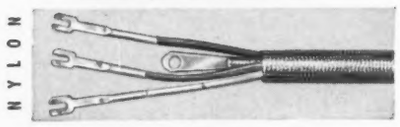

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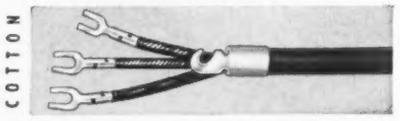

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ly statistics of the industry. At the end of September, it was reported, about 70% of the 46,600,000 households in the nation had telephone service.

The number of telephones in the United States had risen to 51,900,000, although it was less than a year since the telephone industry celebrated reaching the 50,000,000 milestone. Of the telephones in service, 42,635,000 were operated by Bell System companies, and another 1,361,000 by the Southern New England and Cincinnati & Suburban Bell Telephone Cos., in which the American Telephone & Telegraph Co. owns minority interests.

The fantastic rise in the number of telephones in service in the United States is more easily explained, of course, when one surveys the tremendous amount which has gone into plant construction in the postwar period, or even since 1940.

The Communications Division of the Business & Defense Services Administration has just come up with a breakdown of investment in telephone and telegraph plant in the nation since 1940, showing that in 15 years, with 1954 estimated, the total is nearly $13,000,000,000. By far the greatest preponderance of the investment, of course, was in telephone plant, with telegraph expenditures amounting to relatively little, proportionately, although sizable in terms of dollars.

From 1940 through 1953, the communications industry in the United States spent $859,700,000 on new buildings; $3,952,400,000 on outside plant, including pole lines, underground and aerial plant, drops, etc.; and $6,580,500,000 on all other construction, such as central office and subscriber station equipment and general equipment. The totals are based on data obtained through the Commerce Department.

The breakdown shows that in seven of the past eight years, the total invested by the US communications industry has topped the billion dollar mark by substantial margins. The 1954 figure is estimated as about the same as 1953's total of $1,490,000,000, second in history only to the 1948 mark of $1,551,000,000. The only time the industry did not hit the billion total in the past eight years was in the year the Korean war broke out, 1950, when the figure was $945,000,000.

Expect Slow FCC Action on New Separations Plan

ACTION by the Federal Communications Commission on the new "Modified Phoenix Plan" of telephone separations, approved by the 1954 convention of the National Association of Railroad & Utilities Commissioners and reported in this space two weeks ago, will not be forthcoming for at least several months, and could well be delayed until much of 1955 has gone by, informed sources have indicated.

Contributing to the anticipated long period before the Commission approves or rejects the request of NARUC that it approve the plan are several factors. One is the complexity of telephone separations. Another is the unsettled situation regarding the FCC membership.

In the meantime, responsible sources urged that individual state commissions not go ahead and apply the separations procedures unilaterally.

General of S.W. Reports Four Rate Increases

GENERAL TELEPHONE CO. of the Southwest was granted four rate increases during the month of October. They are as follows:

Exchange	Effective	Old Rate	New Rate
Ralls, Texas	**November 26, 1954**		
Dial	Bus.—1 Party	$7.50	$9.50
594 Stations	2 Party	6.00	8.00
	Res.—1 Party	4.25	5.00
	2 Party	3.50	4.25
	4 Party	3.00	3.50
Aspermont, Texas	**November 21, 1954**		
Dial	Bus.—1 Party	6.50	8.00
350 Stations	2 Party	5.00	6.00
	Res.—1 Party	3.75	4.25
	2 Party	3.00	3.50
Ropesville, Texas	**October 6, 1954**		
Dial	Bus.—1 Party	6.50	9.50
173 Stations	2 Party	5.00	7.50
	Res.—1 Party	3.75	5.00
	2 Party	3.00	4.00
Lamesa, Texas	**October 26, 1954**		
Dial	Bus.—1 Party	8.50	9.50
2,829 Stations	2 Party	7.00	7.75
	Res.—1 Party	4.50	5.00
	2 Party	4.00	4.50
	4 Party	3.50	3.85

At the end of October there were 23 cases filed in Texas cities and cases filed with the Arkansas Public Service Commission and the Oklahoma Corporation Commission. The 25 cases represent a total increase in revenue of $972,493.

To date the company has completed 39 cases totaling an annual increase in revenue of $388,123.

Association NEWS

"The individual, no matter how strong as an individual, is weak without the strength of his group. And the beauty of American organization is that individuality is stimulated, not suppressed."—Merle Thorpe.

A monthly department featuring condensed reports on activities of Independent Telephone Associations. Abstracts of convention papers will appear in future issues.

Arkansas Independents Hold 32nd Convention

SEVENTY-FIVE years ago the first telephone exchange was installed in Little Rock, Ark., boasting of some 50 stations — today more than 300,000 telephones serve the people of Arkansas. The Arkansas Telephone Association, commemorating this Diamond Jubilee event, opened its 32nd annual convention at the Majestic Hotel, Hot Springs, with a record attendance of some 250 members, associate members and guests representing 16 states. Governor Cherry proclaimed September 19-25 as "Telephone Week" in recognition of the growth of the system in Arkansas.

T. B. Hollingsworth, association president, of Stuttgart, presiding at the meetings, reported on the tremendous progress made by the association and its members during the year. He spoke of the 33 dial conversions that will have been completed by the end of the year, the increase in stations of some 20,000, and the climb in toll revenue per station.

Mr. Hollingsworth stated that the legislative year of 1955 will bring forth efforts to repeal the bond law now protecting the companies and the public. This repeal would take from the utilities the right to put their rates into effect pending action by the Public Service Commission. He gave credit to the Staff and members of the Commission for their fine cooperation with the association the past two years, and to his own Small Company Assistance Committee that has worked diligently for the members in securing just rates, increased equity in capital through stock sales, long term financing for conversion,

Arkansas Convention Speaker R. L. BANKSON describes available customer relations' material.

and improved maintenance and construction practices. In retiring, Mr. Hollingsworth pledged his continued support to the association and its board. The membership responded by directing the board to present to him on their behalf a plaque for his loyal leadership.

Warren B. Clay, U.S.I.T.A. 1953-54 president, reported on the nation-

Addressing the Arkansas convention, TED ADAIR stressed the importance of personal contact to a good customer relations program.

wide progress made in operator toll dialing, Congressional representation, and the projects before the various U.S.I.T.A. committees. Governor Cherry conferred upon him the honorary title of "Arkansas Traveler," the certificate being presented by Miss Willie Lawson, a valued member of the State Highway Commission, and noted Arkansas Historian.

Elmer Danner of the Texas Telephone Co., Sherman, told the convention audience his experiences in conquering problems confronting small companies. Mr. Danner esmphasized that the responsibility for adequate service rested squarely on their shoulders.

Afternoon sessions were devoted to workshops, divided into Commercial Operations, Installation of the Telephone, Steps in Modernization of the Telephone System. These sessions were coordinated with the "Customer Relations" workshop, which was the theme of the convention.

A symposium conducted by P. A. Lasley, association General Counsel, and participated in by Lewis M. Robinson, T. S. Lovett, Jr., and Dennis W. Horton, members of the Arkansas Public Service Commission, and four telephone company representatives, presented a frank discussion of laws governing public utilities and the rules and practices of the commission.

Especially under fire from the group was the present bond law allowing public utilities to collect increased rates under a bond guaranteeing public protection by the refund clause if the decision of the commission is against the rate increase.

Commissioner Horton, in stating his position, said that since the utili-

ties had been subject to so much criticism recently, it was possible that the Commission in the past had not been firm enough in making utilities show "real hardship" before increasing their rates under bond.

Mr. Lasley, who wrote the utility law years ago, mentioned the devastating effect of regulatory lag in getting final decisions on rate cases, and said that had the legislature seen fit to staff the commission with sufficient engineers and accountants, the utilities would never be placed in such a money-losing position.

The Commission reaffirmed its stand of a fair return on the rate base as 6%, and also its position of net original cost as a proper rate base.

Chairman Robinson, in speaking of adequate service to the rural areas of the state, complimented several of the companies for their dial conversions, rural construction programs, and one company in particular for its public relations program.

Dicky Hardy, assistant cashier of Chase National Bank, explained the bank financing program to the member companies, several of whom have participated. He emphasized the depth of management, adequate rates, rigid maintenance programs, and sound accounting principles in conversion of bank loans to long term financing.

During the convention Mrs. Algarene Graham, Clinton, was recognized for her long service in the industry — 46 years, and Jim Parks of Prairie Grove for his 50 years. Five of the group present boasted 242 years actual telephone service, with no indication for retirement plans.

Officers elected are: John W. Carter, president; H. R. Wilbourn, Jr., first vice-president; Mrs. Virginia Hirsch, second vice-president; J. D. Garrett, Jr., secretary-treasurer; Lois Kehoe, executive secretary; and P. A. Lasley, General Counsel.

Directors elected are: S. A. Lane, Russellville; Carl Moore, Harrison; R. L. Bankson, Little Rock; W. L. (Leo) Bryant, Leachville; John Shaffer, Gentry; T. B. Hollingsworth, retiring president.

North Carolina Group Holds 23rd Annual Meeting

WITH ATTENDANCE noticeably decreased due to Hurricane Hazel, the 23rd annual convention of the North Carolina Independent Telephone Association was held at the Carolina Hotel at Pinehurst on October 18-19. Approximately 100 guests were able to attend and enjoy the two-day convention, entertainment and hear a half-dozen executives speak on various topics.

Three of the newly elected officers of the North Carolina Independent Telephone Association are shown standing in front of the Carolina Hotel at Pinehurst, N. C., scene of the 23rd annual convention of the Independents. Left to right: F. G. LAPRADE, third vice president; R. E. McKELVEY, president; and L. S. BLADES, first vice president.

At the directors meeting held on the opening day of the convention, R. E. McKelvey, of Western Carolina Telephone Co., was elected president of the association for the coming year. Also elected were L. S. Blades, first vice president; E. O. Freeman, second vice president; F. G. LaPrade, third vice president, and C. H. Scott, secretary and treasurer.

At the first business meeting of the convention, J. F. Havens and E. B. Fowlkes, outgoing president and secretary-treasurer respectively, made reports to the convention of the past year's NCITA activities.

After acknowledging his pleasure in serving the North Carolina Independents, Mr. Havens told them he foresaw no decrease in telephone rates until costs level off.

"And though the ordeal of securing increased rates is becoming more and more distasteful for telephone companies, the Utilities Commission and the public, this seems the only apparent answer to this problem until such time as the cost of maintaining service becomes static and costs of adding additional telephones is equal or less than the average cost of existing telephones," he commented.

The outgoing president also expressed his thanks on behalf of the NCITA to Southern Bell for the assistance it had given the independents during the past year.

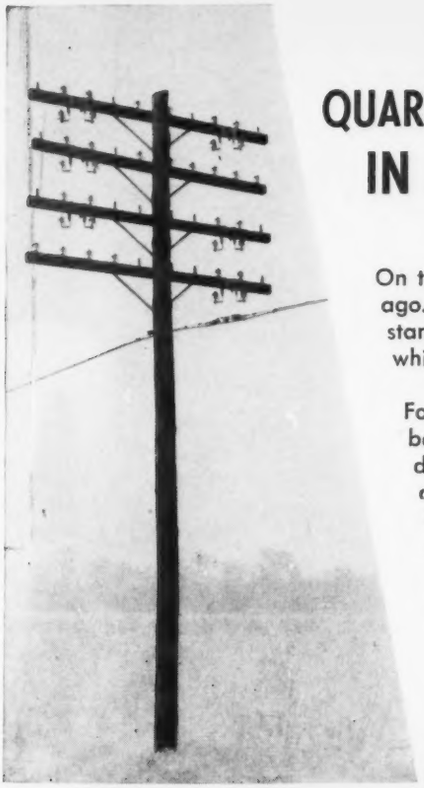
Guest speaker W. E. Singletary, public relations vice president of Wachovia Bank & Trust Co., Winston-Salem, N. C., told the gathering of the increasing importance of good public relations in businesses which deal as closely with the public as telephone companies do. A good public relations program seeks to gain the understanding, approval and support of the public for the business represented, Mr. Singletary said.

W. J. Graham, director of the executive program at the University of North Carolina, told of the work now being accomplished by executive training courses through our country. Not only do these courses produce better and more efficient executives, he said, but they also help these men become better business statesmen who can think in terms of what is good for the free enterprise economy as well as what is good for their particular company.

Clyde S. Bailey, executive vice president of the United States Independent Telephone Association, told the convention that the activities of the U.S.I.T.A. have increased to such an extent that he would have to stay at his post in Washington. "I will be forced to forgo State conventions in the future," he said, "to help push special legislative measures urgently needed by the telephone industry."

Businessmen all over the country have come to realize that the day of the sellers market is a thing of the past, said K. L. Lawson, commercial superintendent of the Lincoln(Neb.) Telephone & Telegraph Co. Telephone companies, like any other business, must now realize this fact and stress salesmanship and the selling of service to gain additional revenue, he said. Mr. Lawson urged the sales promotion of toll, extensions, pay stations, and P.B.X. installations as specific cases where additional revenue can be obtained by successful salesmanship.

J. G. Bradbury, vice president of Southern Bell Telephone & Telegraph Co., told the convention audience that the telephone has made America a one-neighborhood country. Independent telephone companies and Southern Bell work close together he said and offered help to the Independents



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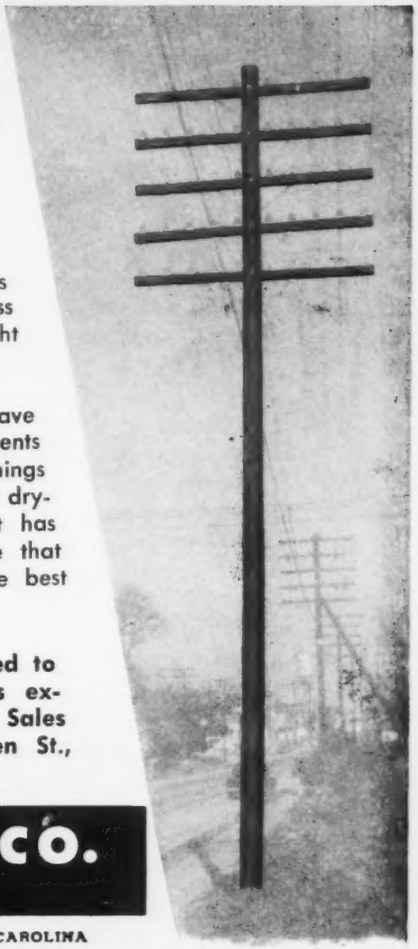

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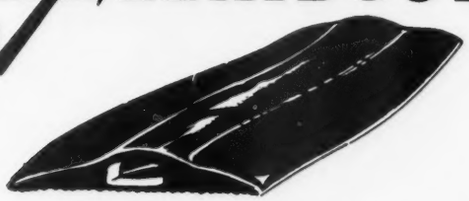

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during the recent hurricane emergency as well as other help to the companies in their long range planning of business operations.

Final speaker on the two period business sessions was Ben E. Douglas, director of North Carolina Department of Conservation and Development. The North Carolina telephone industry must prepare for the future as any other vital industry in North Carolina, Mr. Douglas said. In citing the needs for the future in this state, he told the convention group that "we must be ready for war, increases in population, business and costs." He stressed the importance of attracting top personnel to the telephone industry.

North Carolina's growth is planned toward a balance between industry and agriculture, he reported. "If we produce better living, full stomachs, good places to live and work," he said, "there will be no such thing as communism in North Carolina."

A directors meeting was held at noon on the opening day of the Pinehurst telephone convention, while the business meetings were held during the afternoon the first day and in the morning on the second day of the annual meet. Entertainment and dancing were featured program events during the evenings.

Directors elected are: L. D. Coltrane, Jr., Concord Telephone Co.; W. A. Carpenter, Hickory Telephone Co.; R. E. McKelvey, Western Carolina Telephone Co.; Frank G. LaPrade, Lee Telephone Co.; and L. D. Garibaldi, Matthews & Waxhaw Telephone Co.

Schafer Reelected Michigan Assoc. Pres.

RUSSELL J. SCHAFER was re-elected to his fourth term as president of the Michigan Independent Telephone Association during the group's 19th annual convention. Other officers are: Don Carlson of Morenci Home Telephone Co. and L. W. Reynolds of the Ontonagon Telephone Co., vice presidents; T. A. Saunders, reelected treasurer; Fred W. Twigg, renamed secretary; and Maxine N. Lovell, assistant secretary-treasurer.

Directors re-elected are: John Collver, Climax; Lovell L. Cook, Bloomingdale; and John R. Fox, Waldron.

L. H. Meyer, president of the General Telephone of Michigan was elected to the board for a three year term.

Officers of the Michigan Independent Telephone Association. Seated (l. to r.): L. W. REYNOLDS, vice president; R. J. SCHAFER, president and DON CARLSON, vice president. Standing (l. to r.): T. A. SAUNDERS, treasurer, and F. B. TWIGG, secretary.

Speakers at the 2-day meeting were: Warren B. Clay, Hutchinson, Minn., 1953-54 president of the U. S. Independent Telephone Association; Leon Roberts of the Illinois Telephone Co., Bloomington; Ray Foulkrod, chief engineer, Michigan Bell Telephone Co.; William J. Hamm, vice president and general manager, Union Telephone Co., Owosso; Michigan Association President, R. J. Schafer, Pinconning; F. B. Twigg, secretary of the Michigan association; and Attorney, A. C. Froser.

Washington Independents Hold Joint Plant Clinic

THE PROBLEMS of the telephone companies in Washington State are receiving careful consideration these days by a study forum made up of the following:

(1) For the Washington Public Service Commission: The Honorable Robert D. Yeomans, commissioner; Thomas Hunt, chief engineer; and William Rummens, telephone engineer.

(2) For the Washington Independent Telephone Association: R. E. Rudolph, chairman, Ellensburg Telephone Co., Ellensburg; L. M. Curry, president of the Washington Independent Telephone Association, Yelm Telephone Co., Yelm; A. J. Zimmerman, executive director of the Washington Independent Telephone Association, Seattle; Ray Dalton, vice president, West Coast Telephone Co., Everett; W. R. Jarmon, president, General Telephone Co. of the Northwest, Spokane; Don Childers, Oregon-Washington Telephone Co., Sunnyside, Wash.; and Glenn Stover, president, Skagit Valley Telephone Co., Mount Vernon.

(3) For the Pacific Telephone & Telegraph Co.; Ben Bowling, assistant vice president; Stanley F. Damkroger, general commercial manager; and Michael J. Murphy, general commercial agent.

The objectives of the newly formed committee were outlined in a progressive program drawn up and adopted on August 26, 1954. It covers practically all phases of telephone operation and is designed to give assistance to both large and small companies on such subjects as improved service arrangement, dial conversion, sound rate structures, financing, plant

Directors of the Michigan Independent Telephone Association. Seated (l. to r.): L. W. REYNOLDS, F. B. TWIGG, DON CARLSON, R. J. SCHAFER, T. A. SAUNDERS, and JOHN SATTLER. Standing (l to r.): J. R. FOX, L. H. MEYER, K. B. SAGE, JOHN COLLVER, L. L. COOK, and C. R. SMITH.

WASHINGTON "PLANNING GROUP" (L. to R.): — ROGER MILLER, commercial department, the Pacific Telephone & Telegraph Co.; ANDREW J. ZIMMERMAN, executive director, Washington Independent Telephone Association; MRS. ADA J. MURPHY, Washington Independent Telephone Association; MICHAEL J. MURPHY, commercial agent, the Pacific Telephone & Telegraph Co.; DIXON VALLANCE, supervisor training foreman, the Pacific Telephone & Telegraph Co.; JOHN BENEFIELD and DON BUTLER, commercial department, the Pacific Tel. & Tel. Co.

construction and maintenance, traffic problems, publicity and public relations, employe benefits, and the return of an old friend, sales and merchandising. Many of the above subjects and those that deal specifically with improved telephone service techniques, modern commercial procedures, office and plant record forms, sound accounting and credit practices are either being covered by a series of regional conferences held throughout the State or by individual contacts with the companies needing particular assistance.

The first phase of this plan was started on September 15 and 16, 1954 when 75 persons, including representatives from the Washington Public Service Commission and the British Columbia Telephone Co., of Canada, attended a joint Plant Clinic in Seattle, Wash.

This conference was highly important in at least two respects:

(A) It was the dedication of the Pacific Telephone & Telegraph Co.'s Plant Training Center which is believed to be the only one of its type in the United States. This headquarters is fully equipped to train telephone people in every aspect of outside plant construction and central office maintenance.

(B) It was the first time as far as is known that representatives of the Washington Public Service, the Independents, the Bell System, and our international neighbors from Canada, have met for such technical studies. The officials of the Pacific Telephone & Telegraph Co. and its plant personnel are to be congratulated for their foresight in this development.

The two days were spent in detailed review of outside plant construction procedures, station installation and central office equipment and maintenance. Experts of the Pacific Telephone & Telegraph Co., working hand in hand with those of the larger Independents, brought to the classroom the latest scientific methods and developments in dealing with these subjects.

This session was followed on October 25, 1954 by a second Plant Clinic at Colfax, Wash., for those who are engaged in telephone work in eastern Washington and northern Idaho. After detailed discussions on specific plant projects, an open forum for questions and answers was held. This was followed by films and actual demonstrations covering such subjects as: Two-man crews, rural distribution wire, drop wire runs, installation and maintenance, central office equipment maintenance, good housekeeping, manual central office, dial central office, cable splicing and maintenance, and exchange transmission and instrument zoning. Plant men all over the State are looking forward to the next series which are now planned for the spring of 1955.

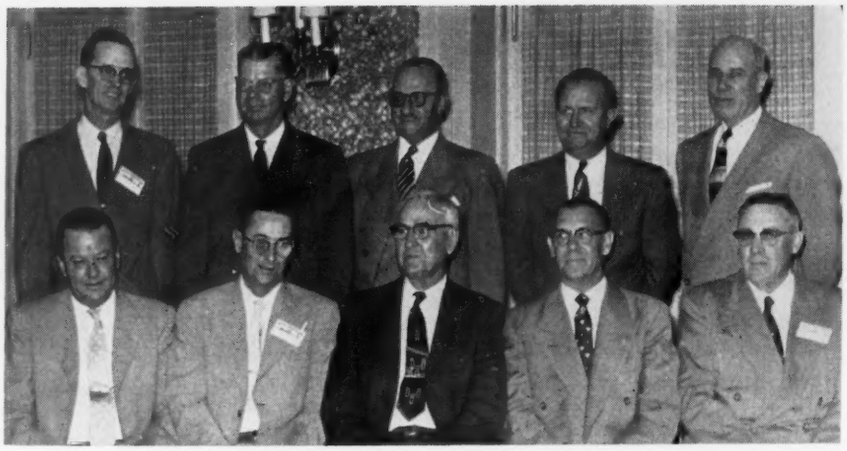
The next phase of the program will be directed toward traffic conferences in which The Pacific and Independent companies' personnel will meet at the various toll centers throughout the State to review and study the latest traffic practices and exchange ideas for improving the handling of telephone calls. These conferences are now scheduled for: Mount Vernon, Seattle, Tacoma, Longview, Colfax, Spokane, Yakima, Bellingham, Centralia, Vancouver, and Lewiston, Idaho. These should do much to speed up telephone service throughout the entire area.

The Activities Committee meets

"PLANT CLINIC": — Washington State regulatory body representatives and telephone industry men took time out for lunch in Seattle, Wash. at the "Plant Clinic," sponsored jointly by the Pacific Telephone & Telegraph Co. and the Washington Independent Telephone Association.

once every month to review the progress made on the assignments on which they have been working, to outline additional action to be taken on the unsolved problems, and to consider new problems.

This forum establishes a practical means by which the joint responsibilities of the regulatory body and the industry may find expression in direct action in bringing better telephone service to the entire State. It is the new approach to a complicated situation and all who are participating are to be commended on their readiness and willingness to jointly work upon mutual problems.



Officers and Directors of Oklahoma Telephone Association (Seated l. to r.): FORREST HAND, Beggs, director; D. R. MAJORS, Carmen, 1st vice pres.; J. W. HOLT, Stilwell, director; R. E. HARRIS, Purcell, director and outgoing president; and F. E. MESSECAR, Broken Arrow, newly elected president. Standing: HUGH D. STRAUGHN, Oklahoma City, secretary; A. L. McFADDEN, Ringwood, 2nd vice pres.; W. E. GOSDIN, Oklahoma City, director; F. F. WRIGHT, Kingfisher, director; and S. C. RICH, Oklahoma City, treas. T. E. SHEARD and C. A. BLAKENEY were absent.

F. E. Messecar Heads Oklahoma Association

THE 1954 CONVENTION of the Oklahoma Telephone Association, held in Oklahoma City on November 4th and 5th, recorded a 75% increase in the number of registrations from Independent telephone companies as compared with the 1953 meeting.

The excellent exhibits of the manufacturers and suppliers were worthy of special note, all of them being shown on the sixth floor of the Huckins Hotel. Seventeen room reservations on that floor were occupied and contained interesting exhibits that were probably the highest point of interest of the convention.

President R. E. Harris presided over the meeting and following an address of welcome by Shel Stirling, managing director of the Oklahoma City Chamber of Commerce, he gave a report of the association's activities in 1954.

George L. Verity, an Oklahoma City Attorney and rate specialist, presented a forceful and educational talk on "Incorporating, Financing and Rate increases as related to dial conversions."

Through the courtesy of the North Electric Co., Galion, Ohio, R. E. Pickett, sales engineer — Electronics Division, presented an interesting discussion of "Subscriber Carrier Systems." He described the two different types of these systems now on the market, explained their function and their practical applications.

Everett C. Weitzell, chief, telephone operations and loans division, Rural Electrification Administration, explained how REA could be of help in the financing of improvement programs in a talk entitled "REA financing for Independent Telephone Companies."

Mr. Weitzell emphasized the desire of REA to work hand in hand with the industry in solving the problem of better telephone service in rural areas.

"We have only one desire," he said, "and that is to be of service to the telephone industry in accordance with the objectives that Congress had in mind when it provided the REA telephone loan program. I believe that the objectives and aims of the Independent telephone industry and those of REA are identical and that we are working toward a mutual objective.

"There should be no feeling that REA is trying to crowd anybody out, either from an operating or a financing point of view. There is certainly room for every assistance that will be intelligently offered and applied. Where the Independent company can obtain adequate and suitable financing from private interests, this source of capital should be encouraged and fully utilized. Where REA financing seems to be the only available and suitable source of required funds we stand ready to give every reasonable consideration and assistance.

"In every respect we are ready and willing to share the challenge and the difficult task of developing a strong and more serviceable rural telephone industry. Your constructive criticism, counsel and advice are always welcome. Working together toward our mutual objective, we should be able to develop the kind of independent telephone service that all of us will be proud of during the years to come."

George Hamburger, manager, communication sales, Copperweld Steel Co., showed a film that portrayed improved methods of obtaining adequate grounds for telephone systems. This also included oral explanations and discussions to further clarify the methods employed.

The afternoon program of the first day closed with a traffic talk presented by H. A. Miller, general manager, telephone department, Western Light & Telephone Co.

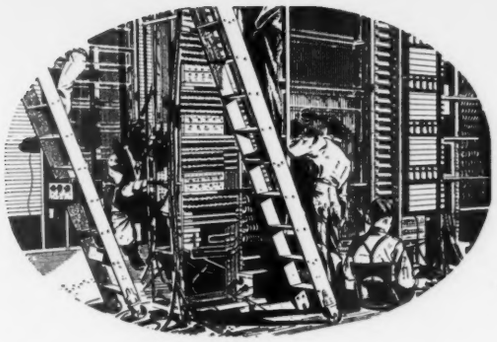
This was followed by a tour of the 4-A Operator Toll dialing equipment now in operation in Oklahoma City.

An accounting clinic by A. C. Buchanan attracted a number of small company people who obtained valuable information and advice on their accounting practices.

Directors re-elected for three year terms are: R. E. Harris, Purcell; D. R. Majors, Carmen; and T. E. Sheard, Salina.

The board of directors also includes: C. A. Blakeney, Waynoka; J. W. Holt, Stilwell; F. F. Wright, Kingfisher; W. E. Gosdin, Oklahoma City; Forrest Hand, Beggs; A. L. McFadden, Ringwood; and F. E. Messecar, Broken Arrow.

The directors elected the following officers for the ensuing year: President, Mr. Messecar; First Vice President, Mr. Majors; Second Vice President, Mr. McFadden; Secretary, Hugh D. Straughn of Oklahoma City; and Treasurer, S. C. Rich also of Oklahoma City.



Questions and ANSWERS

Conducted by JAY G. MITCHELL

IN THIS ISSUE, Mr. Mitchell discusses: — (A) New aerial cable for rural lines; (B) Replacement for aerial wire in poor condition; and (C) Importance of careful reading and understanding of terminology.

QUESTION: — *We are planning on tearing up some of our old iron wire lines and are wondering if cable would be the answer to better transmission and cutting down the number on rural party lines. We are wondering if it would be practical to extend a lead-sheathed, 19-gauge cable 10½ miles with loaded cable. The 10½ miles will be divided up into sizes as follows. (In a sketch with this inquiry the 10½ miles of 19 gauge cable is divided into the following segments.)*

From the Central Office 40 pair for one mile

From the end of the 40 pair segment 35 pair for 4½ miles

From the end of the 35 pair segment to the outer terminal of the cable 5 miles

Total length of the proposed cable 10½ miles

What size of loading coils, the number and the cost of both the cable and the loading coils? Also quote us prices on plastic sheathed cable for same and messenger for carrying the lead cable. Is the above practical and if not what are the main objections or difficulties? We would appreciate you giving us what help you can on this problem as soon as possible. Stamped and directed envelope not enclosed.

ANSWER: — This inquiry shows that this telephone company is at least giving consideration to a construction project that will, if properly carried out, result in improved service and reduced maintenance for the rural multiparty telephone circuits affected. Since the proposed improvement will also cost a very sizable sum it is essential that the most careful study be given to all features *before* any of the required construction materials is ordered. This means that the proper kind of cable is specified in asking for quotations. It is *not sufficient* to specify the cable solely by the gauge of the conductors. Care must be taken to specify the maximum allowable mutual capacitance per loop mile as well as the number of pairs and the gauge of the conductors.

The matter of the loading coils also presents some considerations that will determine what type is to be used, how they are to be spaced and what provision must be made for their installation in the cable lead. These considerations must be resolved on the basis of the probable possible future use of carrier on these rural lines or the provision of loading suitable for audio frequencies only.

It is suggested that this telephone company have a careful study of the characteristics of cable construction under present conditions made by its engineer. The matter of loading and loading coils is outlined in a helpful way in THE HANDBOOK FOR TELEPHONE MANAGERS AND ENGINEERS, by B. C. Burden which is for sale by TELEPHONE ENGINEER PUBLISHING CORPORATION. In connection with the basic principles set out in the HANDBOOK recommended expert advice should be obtained on the entire project so that the possibility of installing cable plant suitable for the extra fine selective party line service soon to become available may be assured.

In conclusion it is the suggestion of QUESTIONS AND ANSWERS that the most thorough study be given to the specifications for this cable installation after the best expert help has assured that no important factors will be overlooked.

QUESTION: — *We have noticed in recent advertisements that a type of distribution cable is now being offered in which the supporting messenger for the cable is included. In several parts of our telephone plant there is some* "hoopykack" *which is in poor condition due to age and continued use after many cases of line trouble have been cleared. Would the new cable with its own internal messenger be suitable for the replacement of this part of our plant which is in poor condition? What will be the cost of the new cable for replacement of the old and unsatisfactory pair wire in rings which must be replaced in the interest of maintaining reasonably good service? This is the condition in all of our offices but one which has magneto service and is of comparatively new and more modern type of outside plant.*

ANSWER: — The term "*hoopykack*" which is used in this inquiry to describe a type of line construction which is in need of renewal, may not be known to all of the readers of TELEPHONE ENGINEER but will be very clear to the old timers. For the benefit of others it may be said that the term is an old one and applies to insulated pair wire threaded through rings in aerial wire leads where the tree foliage is heavy or for temporary plant for some other reason pending the future installation of open wire or of cable. This type of temporary construction was very common at one time and in some cases, as appears to be the condition underlying the present inquiry, its tempor-

ary character was more or less lost sight of and it gradually deteriorated in condition until replacement became absolutely necessary.

It is suggested that this telephone company direct an inquiry to the manufacturers of the new shieldless cable and restate the problem. QUESTIONS AND ANSWERS cannot quote any cost figures on the basis of the facts in the inquiry but suggests that full data regarding this excellent type of distribution wire will be gladly supplied, together with costs, by the manufacturer upon request. Like all other modern replacements of aerial telephone wire care must be taken to provide the type of plant which will be suitable for the most recent advances in service improvement.

The placing of any telephone plant under present conditions should be most thoroughly analyzed and every possibility of the future that can be determined should be anticipated. By this is meant that all plant material should be selected with the requirements of every known advance in service provided for. This is especially true in plant to serve rural subscribers where improved service may be possible in the near future if transmission requirements for the probable new developments are taken into consideration.

For these general reasons the fullest possible data and transmission characteristics of the new type of cable for modern use will, we are sure, be gladly supplied by the manufacturers upon request.

QUESTION: — *The term "10% trunking" is a rough rule of thumb. It should be used by persons still travelling in the one horse shay. It certainly has no basis in Traffic Engineering for modern Dial Equipment. I would like to show you the fallacy of using this rule of thumb on two types of equipment or even the same equipment filled to different capacties.*

Examples:

200 *lines of line finder equipment*
20 *line finders* (10% *trunking*)

100 *lines of line finder equipment*
10 *line finders* (10% *trunking*)

50 *lines of line finder equipment*
5 *line finders* (10% *trunking*)

ANSWER: — This portion of the letter from the traffic expert is reproduced in full. In the succeeding portion of his letter this writer proceeds to prove that in each of the cases listed the trunking ratio (trunks per line) is 10% *but that the traffic capacity in calls per unit time of each trunk in the three instances cited is* not the same. This is of course true as has been pointed out in later installments of the material on traffic. The fact remains, however, that the trunking ratio in each of the three cited cases is 10% and QUESTIONS AND ANSWERS is glad to have this criticism because it illustrates the importance of *reading* this kind of material *carefully*. There is no justification for assuming that 10% trunking is anything more than a description of the mechanical arrangement of communication equipment. It is no more definite than the term 3 feet, the term one mile or the term one pound. Telephone traffic is a subject that requires the most careful reading of all data and study and terms like 10% trunking, without additional data have no quantitative value, for traffic planning. Our thanks to this correspondent for directing attention to a wording that seems to have afforded opportunity for a careless reader to misinterpret a general statement.—THE END.

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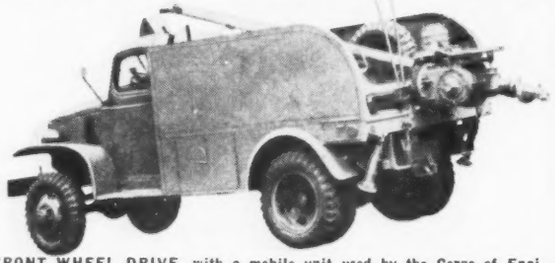

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Copies of *Station Paper* 19 may be obtained without cost by writing to *Thompson Chemicals Corp., Research Department, St. Louis* 3, *Mo.*

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"IT'S GOOD BUSINESS TO KNOW YOUR MEN" — Information contained in this booklet is offered to help the foreman or supervisor deal more effectively with his employes. Catalog No. F S 2.22: M 52/9. Price 10 cents. *Order from U. S. Government Printing office, Washington* 25, *D. C.*

OFFICERS, COLEBROOK (Ohio) TEL. CO.: — Seated around the table (r. to l.): J. C. RODGERS, vice president, also acting as president in the absence of President H. P. CHAMBERS; MRS. HELEN L. SHATTO, secretary; W. A. FRANTZ, director; E. C. EASTON, manager; E. A. WEBB, director; H. G. DORSON, director; and H. E. WAID, director. Treasurer, T. M. WAID, was absent.

The "Come-back" Of An Independent Company

By CARMEN R. WAID

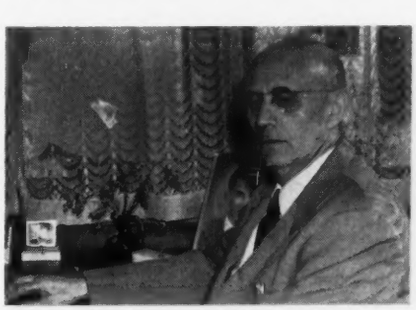
AT ONE OF the cross-roads of the nation lies the little town of Colebrook, Ohio. This town, a descendant of the Connecticut Land Co., is located midway between Warren and Ashtabula, Ohio. The rural population of the township is approximately 1,000.

Four years ago, during a period of shifting population, real trouble struck the Colebrook Telephone Co. The system, which had been founded and built by local farmers in 1905, nearly reached the folding-up stage. Without benefit of repairs or replacements of worn-out plant prior to the war period, the company's property had been allowed to deteriorate until it could not meet service demands.

The influx of people from the cities to the farming sections created new incentive for salvage of the company. The people needed telephones and they wanted them. They had no compunction about "hurting the feelings or prestige" of the old timers. Their personal needs were paramount. They wanted action. They were joined by a majority of the older Colebrook residents who laid aside their community loyalty and proceeded to help give the telephone company a rough time.

Finally, a warning to the company from the Ohio Public Utilities Commission jolted company officials into action and they called a meeting and faced the findings. At that time 89 telephones were in use and only a small percent of the users had continued to pay for poor service.

The meeting was heated. Finally, the officers agreed, if, the system could be rebuilt, they would prefer to keep it as an Independently-owned company, and J. C. Rodgers, who at that time was manager and eager to keep the system as an Independent company, was given authority to see what could be done. E. C. Easton and Mr. Rodgers accompanied other members of a committee to meet with the Public Utilities Commission at Columbus, to ascertain if rates could be raised in order to rebuild and to find guidance on other procedures. While there, they met interested members of other Independent companies who advised them to keep the company an Independent and to rebuild it.



E. C. EASTON, manager of the Colebrook (Ohio) Telephone Co., threw his energies, time and personal money into reclaiming the telephone system.

Mr. Rodgers circulated a petition among the patrons of Colebrook township and received the proper number of signatures. Then, the telephone company accepted the challenge and from its accumulated members, promptly reorganized and girded for action.

A thousand dollars was borrowed. This, coupled with an existing indebtedness raised the company's liabilities to approximately $2,000.

Realizing they must increase revenues, the officers decided to increase rates. It seemed like adding insult to injury at this crucial time and the telephone users in Colebrook promptly went into a state of rebellion. However, the venture proved successful as subscribers were aware of conditions and gave the company a chance to prove it meant business. From an old "all-time low" of a $1.00 a month, the rates were raised to $4.00 a month for private lines and $3.00 for party lines.

In the past four years, the Colebrook company has paid off its borrowings and increased its telephones by 25%. With a debt-free present and a growing bank balance of well over the figure borrowed, the Independently-owned telephone system in Colebrook will celebrate its 50th anniversary in 1955, knowing that it has accumulated, along with its bank balance, a growing number of thanks and appreciation from townspeople. —THE END.

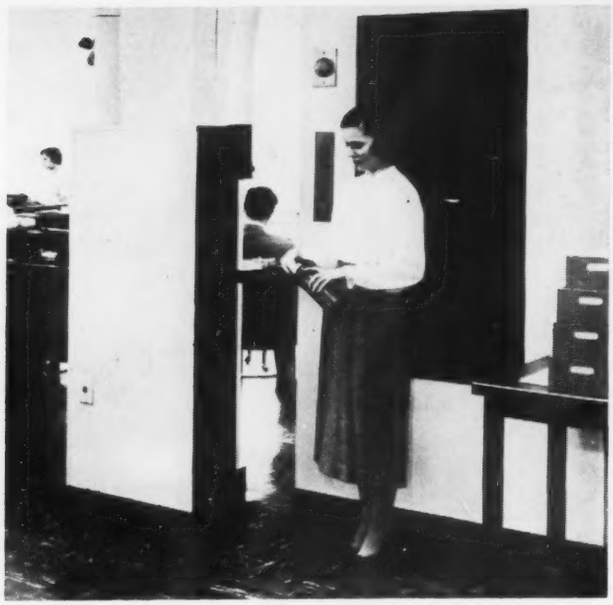


FIGURE ONE: — Airtube station in the billing section where bundles of toll statements are received from the toll adding section on the floor above. Continuous flow of statements helps keep the department operating on schedule without stoppages formerly experienced.

Airtubes Distribute the Work Load

THE SEEMINGLY simple process of transmitting paperwork in a large office establishment is often an unnecessarily expensive one. Delivery costs will include, not only messengers' wages, but also charges for "down time" for office workers and machines, overtime and frayed tempers when needed information and records are not delivered in a steady, reliable flow.

When the activities of several departments must be coordinated in order to maintain a fixed work schedule, the adoption of modern methods of handling paperwork frequently heads off delays and snarls. Two telephone companies, the New York Telephone Co. in Syracuse, N. Y., and the Southern Bell Telephone & Telegraph Co. at Baton Rouge, La., provide interesting examples of the time- and cost-saving possibilities of handling paperwork by pneumatic tubes.

The New York Telephone Co. uses a four-inch Airtube system, designed and installed by Lamson Corp., Syracuse, N. Y., to connect two important segments of its accounting office. The tube line runs between the toll adding section on the fourth floor and the billing office on the third floor. Even though the distance traveled is only one floor, the pneumatic tube plays an important part in keeping operations running smoothly.

About 250,000 toll statements, made up into bundles (or billing books) of 200 slips, are carried through the system each month. This huge billing commitment requires that the billing operation follow a rigid time schedule. The work month of the 27-girl billing section, which is under the supervision of Miss Beatrice McConnell, is divided into 10 billing periods of two work days each. About 25,000 individual toll statements are processed per billing period.

A number of preliminary steps must be completed on the toll statements before they are charged to the individual accounts. Controlling billing book totals of toll charges and taxes must be established, certain credit amounts reflected, and a sub-

(Please Turn To Page 86)

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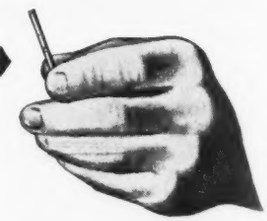

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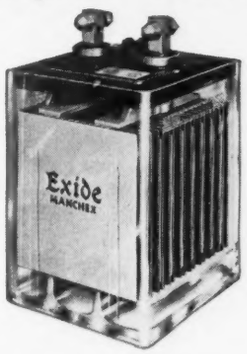
something new in sub-station protectors

The Cook type RO-9u Sub-station protector has a rugged all-metal housing in which are mounted the A-9u 7 amp. fuses and the line and surge arresters.

This protector meets all requirements of the Underwriters' specifications and is listed by the Underwriters' Laboratories.

Insulation is of high impact bakelite, and secondary surge arresters furnish high voltage protection when fuses are blown or removed.

Exide-Manchex telephone batteries



assure positive operation

For Central Office and Private Branch Exchange Equipment

This is proven daily in exchanges of every size . . . for over 60 years Exide Batteries have been serving the Telephone Industry . . . the Manchester positive plate with its exclusive button type construction provides exceptionally long life . . . latest developments on molded glass jars permit compact space saving installation . . . heavy terminal posts with copper inserts provide extra conductivity for sustained voltage at high discharge rates . . . microporous rubber along with slotted plastic separators, are impervious to chemical and electrical reactions . . . plastic spacers assure plate alignment . . . for assured dependability, long life and low-cost maintenance use Exide Manchex.

The Electric Storage Battery Co.
Philadelphia, Pa.

1888 . . . Dependable Batteries for 66 Years . . . 1954

crapo

guy and messenger galvanized strand

The superior tensile properties inherent in steel are used to full advantage in *Crapo* Galvanized Strand. The tightly adherent zinc coating applied by the *Crapo* Galvanizing Process provides lasting protection against corrosion, and prolongs the life of the strand. Controlled ductility makes *Crapo* Strand easy to work and to serve. Low first cost and low yearly cost result in important economies for operating companies.

The all-round dependabi.. of *Crapo* Galvanized Steel Strand is being demo trated constantly by its outstanding performance . . ervice. There is a size and grade for all practical needs.

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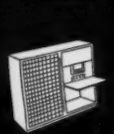
High Fidelity Radios and Radio-Phonographs

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"Panoramic Vision" Television Receivers

AND MANY OTHER ELECTRONIC PRODUCTS FOR OUR ARMED FORCES

TELEPHONE ENGINEER & MANAGEMENT'S

HANDBOOK DATA SHEETS

Prepared By

JOHN S. REED

Table XII—Sag and Tension Installation Data—No Ice or Wind Load
Self-Supporting Ankoseal Telephone Cable
16-pair No. 19 AWG—Type 775-P-SS
(Based on Ansonia Data Sheet No. SS-1603, SS-1604, SS-1605)

Span Length in Feet	Sag in Feet for Temperature in Degees F				Tension in Pounds for Temperature in Degrees F			
	0	30	60	90	0	30	60	90
				Heavy Loading District				
100	0.43	0.53	0.68	0.91	692	553	432	322
125	0.68	0.84	1.07	1.35	676	550	432	340
150	1.11	1.35	1.66	1.97	598	490	399	336
175	1.93	2.33	2.74	3.17	465	387	330	285
200	3.28	3.67	4.14	4.56	361	321	285	259
225	4.78	5.22	5.66	6.10	313	287	264	246
250	6.62	7.05	7.48	7.92	279	263	248	234
275	8.56	8.98	9.38	9.82	262	250	239	229
300	10.8	11.3	11.7	12.1	247	238	229	222
325	13.3	13.7	14.1	14.5	237	231	224	218
350	15.9	16.3	16.7	17.1	230	225	220	215
375	18.7	19.1	19.5	20.3	226	221	217	213
				Medium Loading District				
100	0.43	0.53	0.68	0.91	692	553	432	322
125	0.68	0.84	1.07	1.35	676	550	432	340
150	1.00	1.23	1.54	1.88	660	539	432	351
175	1.41	1.72	2.09	2.50	638	525	432	361
200	1.95	2.30	2.73	3.19	603	512	432	370
225	2.55	2.97	3.46	3.97	583	500	432	376
250	3.22	3.73	4.27	4.79	570	494	432	384
275	4.05	4.60	5.18	5.74	551	485	432	389
300	4.93	5.53	6.14	6.75	538	479	432	394
325	5.94	6.53	7.20	7.83	523	476	432	398
350	7.23	7.90	8.57	9.20	498	457	422	393
375	8.90	9.55	10.2	10.8	467	435	408	385
400	10.6	11.3	12.0	12.6	444	418	396	376
425	12.6	13.2	13.9	14.5	425	405	387	369
450	14.6	15.3	15.9	16.5	412	395	379	365
475	16.8	17.4	18.0	18.7	400	386	372	359
				Light Loading District				
100	0.43	0.53	0.68	0.91	692	553	432	322
125	0.68	0.84	1.07	1.35	676	550	432	340
150	1.00	1.23	1.54	1.88	660	539	432	351
175	1.41	1.72	2.09	2.50	638	525	432	361
200	1.95	2.30	2.73	3.19	603	512	432	370
225	2.55	2.97	3.46	3.97	583	500	432	376
250	3.22	3.73	4.27	4.79	570	494	432	384
275	4.05	4.60	5.18	5.74	551	485	432	389
300	4.93	5.53	6.14	6.75	538	479	432	394
325	5.94	6.53	7.20	7.83	523	476	432	398
350	7.04	7.73	8.37	9.00	512	468	432	401
375	8.28	8.88	9.64	10.3	501	464	432	404
400	9.52	10.2	10.9	11.6	496	463	432	408
425	10.9	11.6	12.4	13.1	487	459	432	410
450	12.5	13.2	13.9	14.6	481	454	432	412
475	14.1	14.8	15.6	16.2	474	452	432	414

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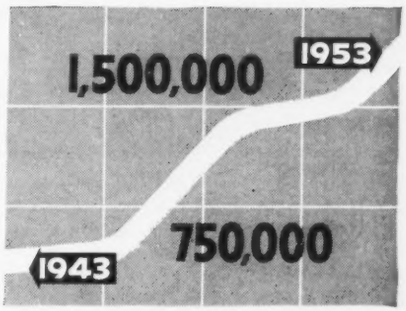
At Christmas you put your heart on the line

Millions of holiday calls will travel the wires of Independent Telephone Companies



AVERAGE LONG DISTANCE CALLS PER DAY
for Independent Telephone Companies

No matter how far from home you are, it's good to know you can telephone there during the Christmas season. Independent Telephone Companies help make this possible. They are your link with villages, towns and cities covering *two-thirds* of the nation. Besides providing local service to nine million telephones, Independents own and operate more than 500,000 miles of long distance lines. Their facilities, completely interconnected with the Bell System, make long distance service truly nationwide. Remember this when making your Christmas calls. You may have one of America's 5,100 Independent Telephone Companies to thank for bringing you the voice of a loved one.

USITA

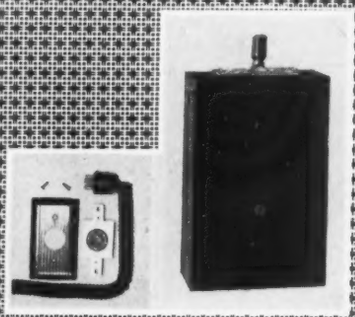
• *Telephone instrument in photograph above manufactured by Stromberg-Carlson Company, Rochester, N. Y.*

United States Independent Telephone Association

Pennsylvania Building : Washington, D. C.

Avoid delay—make long distance calls before Christmas day.

Suttle Prices Make These Profitable Revenue Producers



It seems there is no end to the opportunities for selling extension services of one kind or another. These popular-priced accessories guarantee profitable extra revenues.

Suttle Loud Ringers

All-metal, heavy duty ringers with 6-inch gongs that really "ring the bell" with patrons who have problems "hearing the telephone."

Extension Switching Keys

The poor man's PBX. Have countless uses in stores, garages, warehouses—any location that needs one or two extension telephones. Once in service, they never come out.

Wal-Plug Extension Sets

The most popular fad the telephone business has ever experienced. Yet it serves people's idea of luxury. One way or another, it results in extra revenues.

See Your SUTTLE Catalog

Serving Independent Telephone Men Since 1910

Suttle EQUIPMENT CO.

LAWRENCEVILLE ILLINOIS

Airtubes Distribute Work Load

(Continued From Page 82)

stantial part of the work verified. A smooth, steady flow of statements from the adding section is therefore essential if the billing group is to adhere to its tight time schedule.

Before the tube system was installed, the billing books were delivered by messenger from the toll adding section. At the beginning of the billing periods, there usually were only a few completed books available, and this situation resulted in intermittent work stoppages of 5-10 minutes in the billing section. To help keep the section in operation during these intervals, one or more girls from the toll adding section had to make frequent trips with whatever books were completed. This procedure withdrew needed personnel from the adding section and thus contributed further to the delays. As a result a considerable amount of time was lost each month.

Now, with the pneumatic tube line between these two sections, these delays have been eliminated. As soon as the adding section completes a book, they forward it through the tube and thus keep the work load flowing steadily throughout the work period. The pneumatic tubes are also used for returning incomplete or erroneous billing media to the toll adding section for rechecking.

Comparing the present situation with the one that once caused work stoppages of up to 10 minutes in her department, Miss McConnell observed: "Now, the whole process is much smoother. We never have to wait for toll statements, nor do we have any delays in the preliminary work. Our work proceeds at an even rate."

A second, and more extensive example of how pneumatic tubes help coordinate the activities of various departments is provided by Southern Bell Telephone and Telegraph Co. in Baton Rouge. There the tube system carries all the paperwork required for the installation of new equipment or changes in existing equipment or service. Whenever this type of change is requested, a number of departments are involved, including installers, the frame group, business office and other record offices.

The system consists of a pair of sending and receiving tube lines between the order typing section on the fifth floor and the traffic department on the second floor; another pair of tubes connects the traffic office and the assignment office on the fourth floor.

To illustrate how this system coordinates the activities of the various service groups at Southern Bell, let us assume that a new subscriber calls the business office to request a telephone installation. The Service Representative fills out a contact memo which is sent to the typing office. Here, after being reviewed for completeness and accuracy, a service order is typed with seven copies and sent via Airtube to the assignment office. The order contains all the information necessary for this office to assign the appropriate line and switchboard facilities. Two of the seven copies are then sent by messenger to the installation and frame groups, located elsewhere in the city. A third copy is sent immediately by tube line to the traffic department where a stencil is made out for the proper directory information.

The installation and frame groups notify the assignment office when the job is completed, whereupon the fourth copy of the order is returned to the typing office for use by the business office. The remainder of the copies are returned to the indicated departments.

The value of the system is not in handling a heavy paperwork traffic, but in its ability to distribute to the many interested departments the paperwork accompanying service changes without confusion and delay. By being always available for messenger duty, the system permits scheduling information and notices to be sent at will throughout the entire work day.

In both installations the pneumatic tube systems have proved their contribution in providing better service, more quickly and efficiently and without peaks and valleys in the work load. In addition, the systems have made it unnecessary for valuable personnel to interrupt their duties to perform routine messenger work. — THE END.

HIGH PERMEABILITY LOW RETENTIVITY!...

Armco Magnetic Ingot Iron

High permeability and low retentivity make Armco Magnetic Ingot Iron the *ideal* metal for *all* D-C applications. Corey supplies Armco Magnetic Ingot Iron bars in hot rolled and cold drawn finishes in rounds, hexagons and squares—also flats with round or square edges, and in cold rolled strips of various tempers for punching, bending, blanking and drawing.

In addition heavy gauge sheet or strip are available for such D-C devices as Magnetic cores, Magnetic armatures and control parts, Magnetic chucks, Magnetic clutch parts, Relay parts and Loud speaker parts.

Contact Corey for the most complete variety of Armco Magnetic Ingot Iron *anywhere*.

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COREY STEEL COMPANY 2800 SOUTH 61ST COURT CHICAGO 50, ILLINOIS

—know your commissioners

Meet Hon. Tyre W. Burton

***EIGHTH** of a series of articles introducing members of state and national regulatory commissions and officers, directors and chairmen and committee members of the National Association of Railroad & Utilities Commissioners.*

AS WE MEET and become better acquainted with the men who regulate the utilities of this country we are impressed by the many similarities that crop up during interviews. For example, whether it be a Commissioner from Georgia or Missouri we find that like the commissioner from Wisconsin he is a family man, a loyal church worker, and thoroughly dedicated to serving the people of his state to the best of his ability.

And such a man is the Honorable Tyre W. Burton, Chairman of the Missouri Public Service Commission. He scores perfect on all three counts.

On the first point, he is a family man and has been since he married Miss Beulah Hitt in 1913. Tyre Burton refers to this high spot in his life as a "horse and buggy courtship" which began in the early days when he worked on a farm to pay his room and board.

On the second count, church work has played an important part in Tyre Burton's life. For 35 years he has been a member of the Disciples of Christ Church, and during this time he has served as teacher, superintendent of the Sunday School, Deacon, Elder and Chairman of Church Boards.

To the third count, *service to the people of his state,* Tyre Burton has dedicated his working life. This statement is best proved by the variety of his labors: school teacher; four years service as Assistant Postmaster under the Wilson administration; Deputy Circuit Clerk and Recorder of Howard County, Mo., during which time he studied a correspondence course in law which enabled him to pass the Missouri Bar Board examination in 1923 and obtain licenses to practice law in Missouri, in the Federal Courts of Missouri and in the United States Supreme Court.

The Honorable Tyre W. Burton is chairman of the Missouri Public Service Commission.

That correspondence course sort of set the path for Tyre Burton's future. Shortly after receiving his license to practice law, the citizens of Howard County elected him to the office of prosecuting attorney, for two 2-year terms. These were busy terms for prohibition was riding high at that time and enforcement of the law was one of the principal duties of the Prosecuting Attorney's office.

From Prosecuting Attorney of Howard County, Mo., Mr. Burton was elected to the Missouri House of

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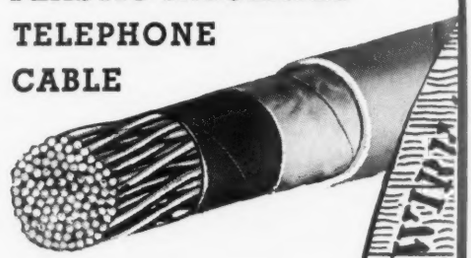
THE MODERN, PLASTIC-INSULATED TELEPHONE CABLE



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Available for aerial, duct and direct burial — paired, quadded and composite constructions. Use Ankoseal on your next job. Get full details from your nearest Stromberg-Carlson Branch Office.

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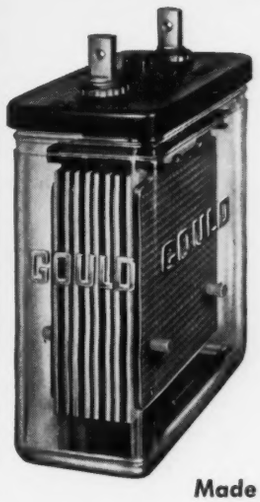
the battery that lasts practically forever



gould planté

For long life and uniform dependable service, no other telephone battery equals the Gould Planté. It has rolled up amazing performance records, remaining in active full-float service for 20 years, 30 years and longer!

In the Planté, *all* of each positive plate is pure lead, containing *no* antimonial impurities. Thus, Gould has eliminated the primary cause of self-discharge, capacity losses and shortened battery life. Planté batteries float at constant voltage and maintain rated capacity all their life. Because they almost never need service, maintenance is negligible. If you would cut battery costs to a minimum, choose Planté.

Made by GOULD-NATIONAL BATTERIES, INC.

the new **cane** *seat is cooler - cleaner - more comfortable...*

sturgis SC-240

Literally "by request"—this new operator's chair retains all the posture advantages for which Sturgis is famed and adds the cool, clean comfort of a *cane* seat. The posture-curved, well-cushioned back rest is covered in genuine leather.

The exclusive Sturgis "Follow-Flex" feature automatically adjusts to the operator's every movement, supports her restfully all the time, discourages fatigue, keeps her at top efficiency.

Other new and welcome features include a plastic-coated steel foot ring which retains its color and a handy purse holder, available on request. Six seat heights, all adjustable.

battery eliminator and ringing supply all in one!

Raytheon's new RectiRingeR*

The new RectiRingeR consists of a time-tested Raytheon RectiFilteR to supply humless, regulated DC power for the switchboard, and an adaptation of an exclusive saturable core reactor to supply 20 cycle ringing power. Field-tested for more than twenty years, these two units are now combined to provide trouble-free power for switchboard and 20 cycle ringing.

The Raytheon RectiRingeR is also equipped with a relay which automatically connects the switchboard to a source of standby power, if the AC power source should fail. Complete specifications on request.

*Reg. U.S. Pat. Off.

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High Fidelity Radios and Radio-Phonographs

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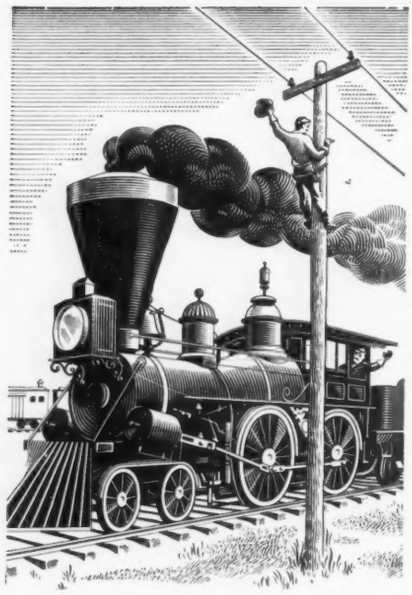


"Faster Freight"

In 1851, Erie Railroad became the first railroad to use telegraphic communications in dispatching trains. This method eliminated many hours of delay at passing points in the single track railroading of that day. Its success led to adoption of the telephone system for dispatching trains now in general railroad practice.

It was in this same era that the first Hemingray Glass insulators were made. Through constant research and development they have kept pace with the communication industries of the world.

There is an insulator design suitable for every communication pole-line requirement. Most jobbers carry complete stocks. Write for a free descriptive catalog. Kimble Glass Company, subsidiary of Owens-Illinois

HEMINGRAY INSULATORS

AN (I) PRODUCT

OWENS-ILLINOIS

GENERAL OFFICES · TOLEDO 1, OHIO

Representatives for two terms, serving on the Appropriations, Judiciary and Taxation Committees, Chairman of the Judiciary Committee for one term and Chairman of the Democrat Caucus in the House for the same term.

All of this experience whetted Mr. Burton's interest in legislation and following his terms in the legislature he was appointed and served his state as its Assistant Attorney General. Later, from 1943 to 1946, he was Chief Tax Attorney in the Sales Tax Department, and Bond Attorney for the State Auditor.

In January, 1949, Mr. Burton was appointed Legal Secretary to Governor Forrest Smith. He served the Governor until August, 1949 when he was appointed Chief Counsel to the Missouri Public Service Commission, beginning a career that was to lead to his appointment as Chairman of the Commission in July 1952.

It has been a full and complete life for Tyre W. Burton. The Burton's have three children (one son and two daughters), six grandchildren (two boys and four girls). Starting as a youth who did farm work to pay his way, Mr. Burton has progressed from school teacher through a long list of responsible positions to his present post as Chairman of the Missouri Public Service Commission — a commission that has joined with the Missouri Telephone Association in developing programs which proved helpful to the industry and the public it serves.

When you wrap that all up in one package — family man, church leader, desire to serve the people — we believe you have the right qualifications for a good *regulatory official*. Which is exactly our description of Tyre W. Burton.—THE END.

Book Reviews

"WIZARDRY OF WORDS," by A. C. Belden. Price $1.00. Order from A. C. Belden, 394 Pacific Ave., San Francisco 11, Calif.

IF READERS of *The Wizardry of Words* follow the advice of its author, A. C. Belden, on how to read his booklet, they may well get profit and pleasure from it. It is not intended to provide a solid meal so much as an *aperitif* a day, or, more exactly, *aperitifs* for some 111 days, to whet the reader's appetite for good writing. Belden calls them clues. By following the clues, writing technique can be improved, he believes, and adds this advice: "Brood over them until they give a certain shape to your mind." The idea is sound, for writing cannot be taught, it can only be learned, practiced, the feeling for it cultivated, assimilated.

The Wizardry of Words includes quotations about words and writing from numerous writers. It also includes some advice the author has distilled from his own study and observation.

Mr. Belden is at present director of advertising and publications for the California Water & Telephone Co., San Francisco. He quotes from Pavlov as well as from Goeth and Virginia Woolf and many other writers, for Pavlov, the scientist, was in a position to observe that "Men are more influenced by words than by facts of surrounding reality." There are collections of image-making phrases and of sentences to excite the nervous system. There are observations on style, on certain disciplines for writers and on the ways of words generally.

The last few pages of the forty-odd-page booklet are left blank for the reader's own notes, in keeping with the advice of Stephen Leacock. He said, "Cultivate admiration for other people's words and phrases that seem to express much, and write them down. Soon you will write your own."

Cost of the booklet is one dollar. It may be obtained only from the author: A. C. Belden, 394 Pacific Ave., San Francisco 11, Calif.

• • •

"Modern Physics For The Engineer;" edited by Louis N. Ridenour; 499 pages, illustrated; Price, $7.50; Publisher, McGraw-Hill Book Co., Inc.

The McGraw-Hill Book Co. has announced the publication of "Modern Physics For Engineers," edited by Louis N. Ridenour, vice-president, International Telemeter Corp., and visiting professor of Engineering, University of California, Los Angeles. The work is an outgrowth of

a popular extension lecture course offered at the University of California, Los Angeles, in 1952-1953.

The aim of the volume is that of giving engineers and other technical men a brief account of some of the more interesting developments in the fundamental physical science which underlies all engineering. Relatively non-mathematical, the book is both authoritative and interesting. It provides a treatment of physical topics which is neither a collection of monographs for the specialist nor a popular account for the uninformed, but rather something in between. It assumes a general familiarity with the methods and results of physical science, but no specialized knowledge of the subjects treated.

Topics treated include: Relativity and the Foundations of Mechanics; Atomic Structure; Physics of the Solid State; Magnetism, Microwave Spectroscopy; Nuclear Structure and Transmutation; Electronuclear Machines; The Actinide Elements and Nuclear Power; Elementary Particles; Astrophysics; High-pressure Phenomena with Applications to Geophysics; The Earth Beneath the Sea; Thunderstorms and Lightning Strokes; Transient Phenomena in Supersonic Flow; Electrons and Waves; Semiconductor Electronics; Communication Theory and the Transmission of Information; and Computing Machines and the Processing of Information.

"Modern Physics For The Engineer" may be ordered from Telephone Engineer Publishing Corp.

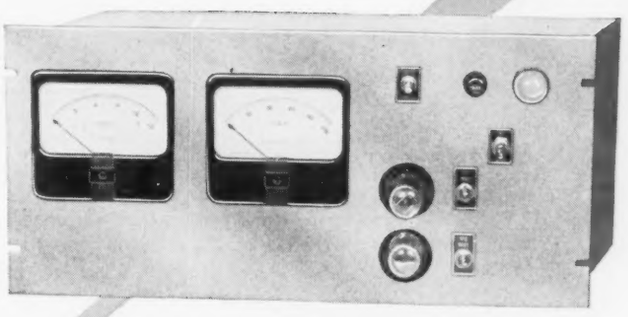
• • •

ACCIDENT RATES: — The 1954 series of "Accident Rates — Communications, Electric Utilities and Gas Utilities," booklet is now available.

The booklet contains the 1953 accident experience of all companies that report to the National Safety Council, and are published annually for each of 15 industries or groups of industries. Each volume provides not only the current accident rates for the industries involved, but also gives a historical rundown of rates for some years back. A bar graph is included which shows at a glance how each industry stands with respect to 40 industrial classifications. For Complete Information write: Jack Horner, Director of News, National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

POWER EQUIPMENT COMPANY'S

NEW VOLTAGE REGULATING CIRCUIT



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★ Greater provision for heavier power requirements.

★ Need for fans, blowers or other moving parts eliminated.

★ A VR-105 single voltage regulating tube is only tube used. This has an alternate VR-105 which is used as a ready standby to assure continuous power flow.

★ Filtered to hold ripple voltage in D-C output to less than 0.5% RMS at full load.

★ Not dependent upon accurate maintenance of line frequency. Successfully used with emergency, portable or standby units.

★ New supplies listed in standard sizes.

These new Peco power supplies are designed to do a better job simply, inexpensively and with less maintenance. Write for free bulletin listing specifications and standard sizes.

POWER EQUIPMENT Company

Battery Chargers ☆ Battery Eliminators ☆ D.C. Power Supply Units ☆ Regulated Exciters ☆ and other Special Communications Equipment

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TELEPHONE ENGINEER & MANAGEMENT

January through December, 1954

Month of issue and page number are shown after article title. First number indicates month of publication; second number indicates page on which article appeared.

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New Allocations Reported by REA

A $1.567,000 LOAN to the Reservation Mutual Aid Telephone Corp., Parshall, N. D., — the fourth loan to this borrower — was approved last month by the Rural Electrification Administration.

With the loan and funds of its own, the company will purchase six Independent companies now serving a total of 909 subscribers over 626 miles of line. Along with rehabilitating the acquired property, the company will add 1100 miles of new line and establish nine new dial central offices.

Modern telephone service will be extended to 3596 subscribers, including 2058 now without telephones, as a result of the four REA loans totaling $2,574,000. Switching service will be provided to another 55 rural families in the area. When completed, the Reservation system will consist of 2331 miles of line and 13 exchanges in five counties.

The Rainbow Telephone Cooperative Association, Everest, Kan., received a $607,000 loan from REA last month to finance improvements and extension of telephone service in three counties.

The cooperative plans to acquire six Independent companies now providing magneto service to 1163 subscribers, including 49 switchers, over 344 miles of line. Plans include rebuilding 322 miles of existing line and adding 52 miles of new line to serve 163 families.

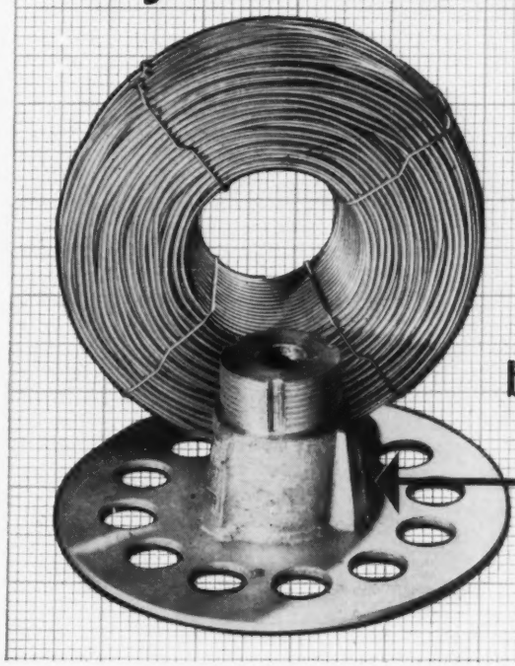
A loan of $124,000 to the Gem State Utilities Corp., Richfield, Idaho, will be used to convert the present system to dial. The completed system of 76 miles of line will serve 276 subscribers.

A new telephone co-op, the Wabash Telephone Cooperative, Louisville, Ill., was given a $617,000 REA farm telephone loan to acquire facilities now serving 748 subscribers, convert to dial, add 272 miles of new line, and add an estimated 705 new subscribers. The co-op will operate three dial central offices.

In Oregon, the Umpqua Telephone Co. of Elkton was lent $170,000, to convert to dial and build plant to add 153 new subscribers. It now serves 177 customers and has changed its name from the Elkton Telephone Co.

Another REA loan went to the Belmont Telephone Co., Platteville, Wisc., which received a second loan of $13,000, the funds to be used to complete the system authorized under the first loan and to build 14 additional miles of line.

Why the Hub is Tapered!



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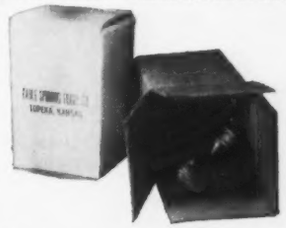

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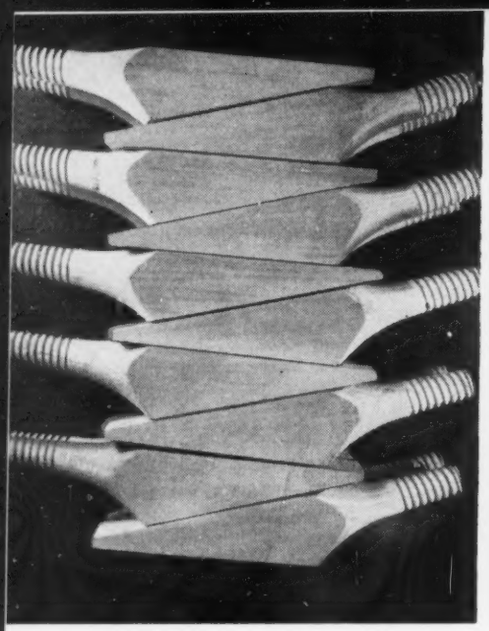

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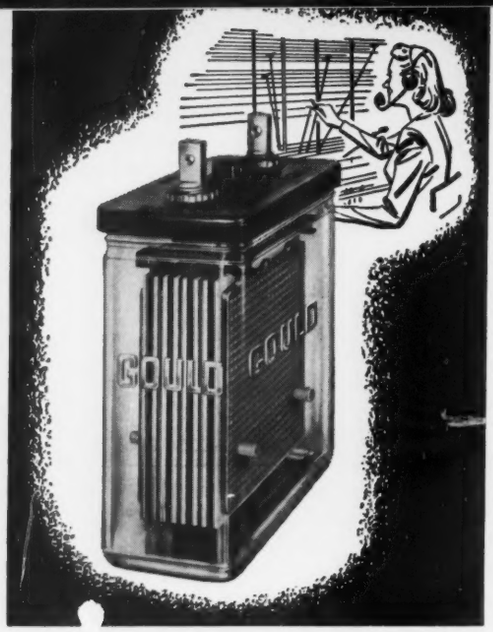

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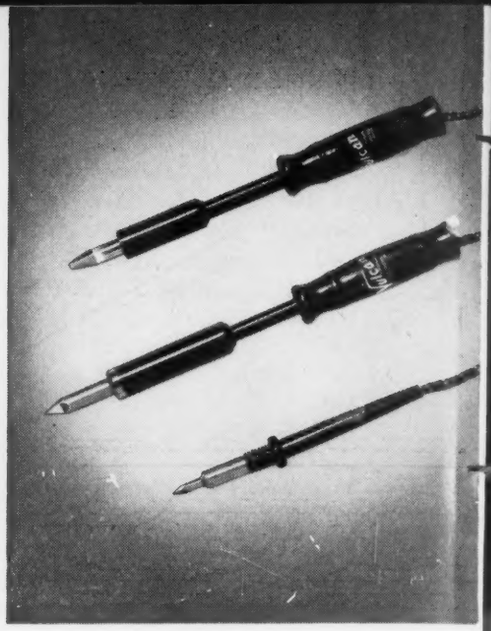

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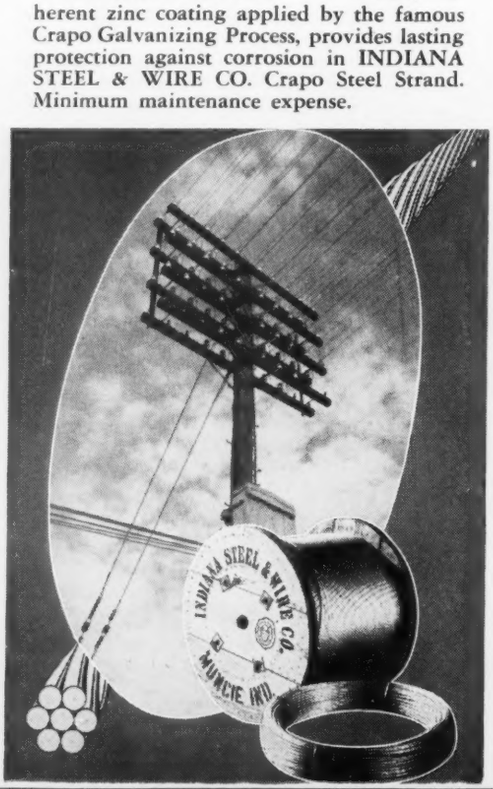

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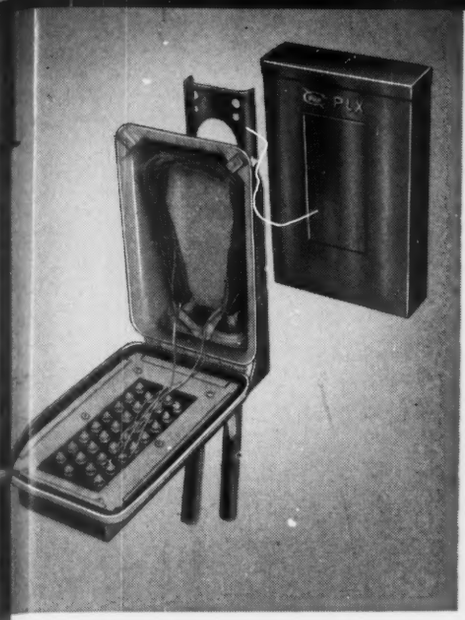

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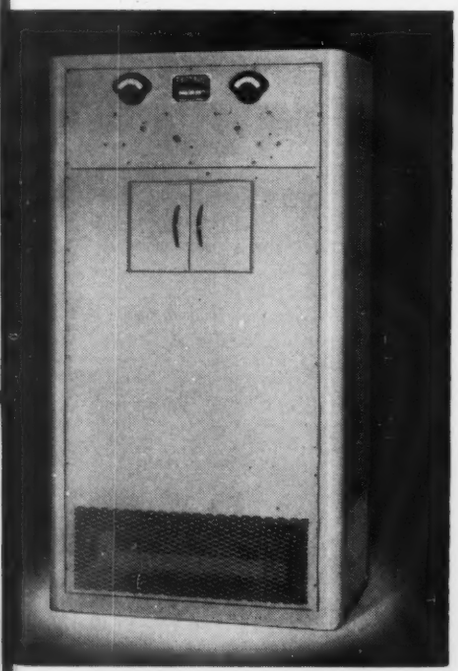

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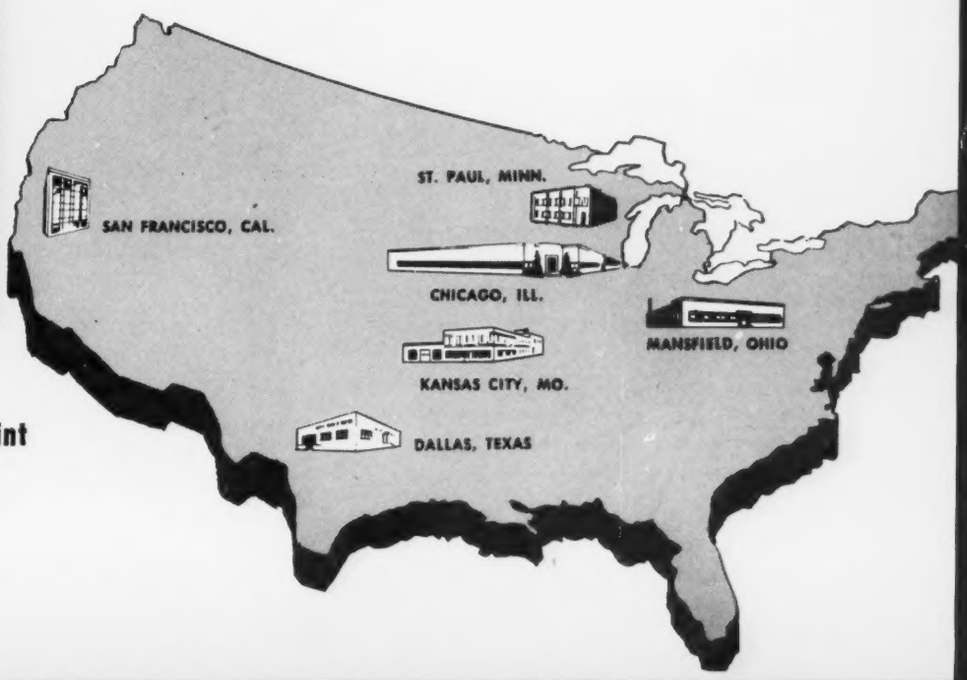


Your Nearest Kellogg Shipping Point Is Never Far Away!

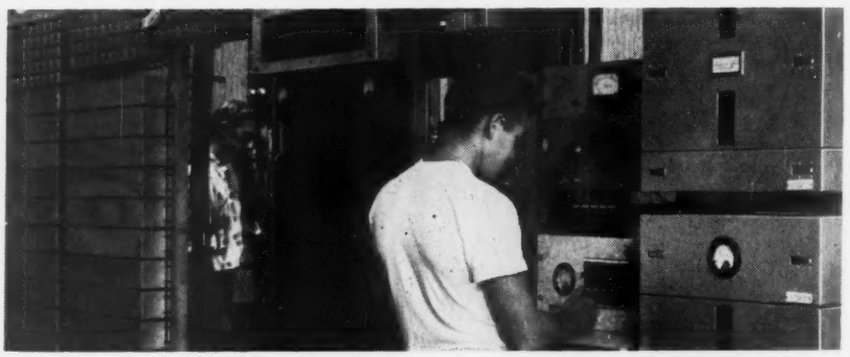
Tele-views

OUTDOOR BOOTH: — Mayor LEO RIEF placed first call at outdoor booth installed at Wisner, Neb., while OTTO F. PAEGE (left), a director of the Cuming County Independent Telephone Co., and Manager H. D. THOMPSON (right) watched.

WANTED!

"Tele-Views" needs good photos of Independent telephone company activities. Send photos and descriptive captions attention "News Briefs Editor."

Southern Continental Telephone Co. recently installed the 1000th telephone in the Sparta, Tenn., exchange at the home of ROBERT GEER. Pictured above is MRS. FLORIE GEER at the telephone. Standing from left to right: FLOYD COOPER, district manager; SANDRA GEER, daughter of Mrs. Geer; and THURMAN JOHNSON, telephone company serviceman.



GAYLORD, MICH. CUTOVER: — Union Tel. Co., Owosso, Mich., recently completed installation of common battery service at its Gaylord exchange. Above photo shows CHUCK HASSELBACK, cable splicer (at panel) checking with JAY STEPHAN during the cutover.

FAREWELL PARTY: — Officials of the Ohio Consolidated Tel. Co., Portsmouth, honored W. T. REICHEL at a "Farewell Party" Sept. 16. Shown above (seated l. to r.): — H. W. MEYER, commercial superintendent; G. T. WINN, traffic superintendent; and MR. REICHEL, former plant superintendent; A. C. PURPURA, general manager; and A. S. CRANE, chairman of the board. Standing (l. to r.): — DUANE WILSON, maintenance supervisor; L. W. SNODGRASS, assistant secretary & auditor; O. V. NEWMAN, equipment supervisor; V. G. RITTER, engineer; M. W. MATZ, district manager; and R. N. COLE, president. Mr. Reichel resigned as general plant superintendent of Ohio Consolidated to enter business for himself. He has been succeeded by ALLAN W. RYDER. (See page 32 of your Nov., 1954 issue of TELEPHONE ENGINEER & MANAGEMENT.)

Farm Telephone Bills Up Slightly in 1953-54

PAYMENTS BY farmers for local telephone service continued to increase during the latter part of 1953 and the first half of 1954, according to a survey made by the Crop Reporting Board. In July 1954, they averaged $3.33 a month or 3% above a year earlier. This was the smallest annual increase in local monthly rates both percentage wise and in actual amount since 1947. Total monthly charges for both local and long distance services averaged $4.92 per farm with telephones compared with $4.95 for July, 1953. For the most part, the increase in local bills was accompanied by an increase in quality of service as more telephones transferred to dial-type service.

Increases in average telephone bills for local service this year occurred in practically all States with only the Pacific States showing declines and with the Middle Atlantic States (New York, New Jersey, and Pennsylvania) holding steady. The South Central and Mountain States showed the greatest increase. As of July, 1954, the highest rates for local telephone service were paid by farmers in the New England States while by far the lowest charges were paid by farmers in the West North Central region.

On July 1, 1954, the percentage of farms with telephones, at 44.3% was the highest on record. This compares with 42.5% a year earlier and was two-thirds higher than in 1940. However, in the 20 years prior to 1940 the percentage of farms with telephones declined rather sharply. According to the U. S. Census, in 1920 about 38% of the American farms had telephone service. Although the percentage of farms with telephones is at a record high, the total number of farms with telephones, although having increased rather steadily over the past several years, is still below the 1920 figure.

According to the survey about 4% of all farm telephones on July 1 were on a private line, 20% on 2 to 4-party lines, 43% on 5 to 8-party lines and 33% on lines with nine or more parties. This distribution showed a slight increase for both the 2-4 party lines, and 4-8 party lines, and a corresponding decline for the 9 and over party lines compared to July 1, 1953. By type of service, about 35% of the farm telephones were magneto, one-fifth were the common battery type, and 45% were dial.

Average Monthly Local Farm Telephone Bills, by Regions, July, 1947-54 1/
Dollars

Regions	1947	1948	1949	1950	1951	1952	1953	1954
New England	2.85	3.10	3.55	3.70	3.83	3.91	4.11	4.23
Middle Atlantic	2.58	2.83	2.86	3.06	3.24	3.32	3.39	3.39
E. N. Central	2.02	2.26	2.39	2.59	2.81	2.97	3.23	3.32
W. N. Central	1.62	1.82	2.00	2.19	2.41	2.59	2.71	2.75
S. Atlantic	2.26	2.58	2.91	3.08	3.22	3.48	3.61	3.75
E. S. Central	2.14	2.58	2.78	2.98	3.08	3.18	3.23	3.42
W. E. Central	1.50	2.24	2.31	2.32	2.63	2.95	3.25	3.46
Mountain	2.60	2.60	2.75	2.95	3.02	3.43	3.55	3.74
Pacific	2.82	3.17	3.26	3.52	3.64	3.82	4.00	3.93
United States	2.05	2.33	2.49	2.67	2.87	3.06	3.24	3.33

1/The survey made in July and August requested data based on "last bill." This was generally a bill for a period ending in late June, July, or early August.

New Microwave Facilities Installed at Bloomington

ILLINOIS TELEPHONE CO., Bloomington, became the first Independent telephone company in Illinois to provide microwave facilities for a television station last month when Station WBLN at Bloomington began broadcasting live network television programs of the American Broadcasting Co.

Bloomington is the 11th city in the state to have a station on the television network, and Station WBLN is the 17th station to broadcast live programs, as a result of the telephone company's venture into the television field.

James F. Van de Vusse, president of the telephone company, explained that the company brings programs to Bloomington over a 30-mile radio relay route from Groveland, Ill. At the 193-foot tower near Groveland, they are tapped off the Chicago-St. Louis radio relay route which is jointly owned by the Long Lines De-

WHY $12,000-$20,000 JOBS ARE THE EASIEST TO GET TODAY

Here Are Some Surprising Facts About the Serious Shortage of High-Salaried Executives

What You Can Do To Qualify for Top-Level Jobs Open Right Now

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It was J. K. Lasser, famous business and tax expert, who went after the facts about the scarcity of qualified men for high-salaried jobs. Polling the heads of companies in many fields, he consistently heard from them the same answer. What men in the middle brackets need to make the high-salary grade, these men told Mr. Lasser, is a general, well-rounded knowledge of business procedure.

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This simple answer gave Mr. Lasser an idea for a brand new plan that would literally lead men out of the $5,000-$10,000 plateau and into the top jobs. He asked the foremost men in every field to reveal working methods that have brought success in marketing, public relations, accounting, budgeting, insurance, and "know-how" in every business procedure for top management.

Mr. Lasser consulted only top men, such as business analyst Roy A. Foulke, Vice-president, Dun and Bradstreet; marketing expert Marion Harper, Sr.; nineteen executives nationally known for their successful methods. Then he simplified and "boiled down" this wealth of knowledge into J. K. Lasser's BUSINESS MANAGEMENT HANDBOOK.

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partment of the American Telephone & Telegraph Co. and the Illinois Bell Telephone Co.

In order to tap this route, it was necessary for Illinois Telephone Co. to construct a microwave tower and a small equipment building near Danvers. This tower relays the television programs from the Groveland tower to receiving equipment installed by the telephone company at WBLN's station for broadcast to the vicinity.

General Of Mich. Installs 100,000th Telephone

THE GENERAL Telephone Co. of Michigan recently became the 12th Independent telephone company in the nation to reach the 100,000th telephone installation. The installation was made in a farm home near Deckerville, Sanilac County, Mich. Seven of the 12 Independents reaching the 100,000 mark are in the General Telephone System.

At the same time General of Michigan President L. H. Meyer disclosed that the Deckerville exchange, serving slightly more than 700 telephones was converted to dial operation last month — the fourth of six dial conversions scheduled by General of Michigan this year. Mr. Meyer also pointed out that his company has had significant expansion of service in its rural areas, an increase of 118% in rural telephones from the beginning of 1946 to October 31, 1954.

New Dial System Cutover at Alger, Mich.

THE ALGER Associated Telephone Co., a new corporation capitalized at $50,000, officially inaugurated modern telephone service on November 4.

A noon luncheon to celebrate the occasion was attended by many prominent persons in the telephone industry, as well as local civic leaders and interested citizens.

Speakers congratulated the company on the fine job it had done in bringing modern dial telephone service to the community in such a short period of time, outlining the many difficult problems involved in such an expansion program.

Robert R. Day, attorney for the Alger company and one of its directors, served as toastmaster and recalled the type of telephone service provided to the area during the earlier days when there were only two lines connected to a jack type box switchboard which had been located for over 39 years in the General Store at Alger. For over 36 years, the store and the switchboard have been operated by Mr. & Mrs. Timothy Strohauer. He also pointed out that the present company was entirely financed by money received from local people through the purchase of stock.

Special congratulations by James A. Beery, president of the newly formed Alger Telephone Co., were directed to the original planning committee comprised of Marvin Seder, Willard Dunn, William Vennix, Raymond Garrity (deceased), Francis Marx, and John Pataky. This committee assisted in establishing initially an organization to bring modern dial telephone service to the community of Alger, an organization which developed later into the Alger Associated Telephone Co.

Congratulations were also extended by Mr. Beery to John Allen, George Dunn, William Vennix, Arnold Cook, John Pataky, William Pataky, Lawson Chambers of the Ogemaw Telephone Company, and Al Butts and Cash Smith of Michigan Bell Telephone Co., whose willing assistance and untiring efforts helped to bring modern

HONORED: — A veteran Independent telephone man, Senator ANDREW J. SORDONI, board chairman of the Commonwealth Telephone Co., Wilkes-Barre, Pa., was elected president of the American Automobile Association (AAA) at the group's 52nd annual convention. The AAA has 4,500,000 members.

Senator Sordoni has served as a director of the United States Independent Telephone Association since 1950. He is currently serving as Secretary of Commerce of the state of Pennsylvania at a salary of $1.00 a year.

dial service to the community of Alger.

Other speakers were Russell Schafer, president of the Michigan Independent Telephone Association, also president of the Pinconning Telephone Co.; Fred Twigg, executive secretary of the Michigan Independent Telephone Association; Cash Smith, Independent company relations representative of Michigan Bell; Lawson Chambers, president of the Ogemaw Telephone Co., and others.

From a telephone installed at the speakers' table, an official cutover signal was given by William Vennix, a director of the Alger company. The first call was dialed by Mrs. Strohauer and the second by Clyde Allen, supervisor for Moffatt Township, after which the guests visited the dial central office equipment building and inspected that installation.

Jack P. Quirk To Represent Leich In Illinois

LESLIE H. WARNER, president of Leich Sales Corp., Chicago, has announced the appointment of Jack P. Quirk as the new Leich representative in the state of Illinois. Mr. Quirk has been an assistant to the manager of the Central District in the Chicago office. Before coming to Leich he was associated with the Automatic Electric Sales Corp.

JACK QUIRK

In the Chicago office, Mr. Quirk handled much of the correspondence and telephone calls from telephone companies in Illinois, so he will be calling on many people with whom he has worked in the past.

Mr. Quirk is a native Chicagoan. He is a graduate of the University of Notre Dame.

Perkins To Represent Leich In Pacific Northwest

LESLIE H. WARNER, president of Leich Sales Corp., Chicago, has announced the appointment of Edward J. Perkins to represent Leich in the states of Oregon, Washington and Idaho. Prior to coming with Leich, Mr. Perkins represented the Graybar Electric Co. For six years he called on telephone companies in Colorado and Nebraska so he is familiar with the needs and problems of the Independent industry. Mr. Perkins received his education in the School of Engineering of Colorado University.

E. J. PERKINS

Line Material Co. Opens Oklahoma City Office

OPENING OF a new sales and branch office at 317 N. E. Hill St., Oklahoma City, Okla., has been announced by R. G. Wheaton, Line Material Co. vice president for marketing and sales.

New Bulletin Describes "Telelink" Equipment

ANNOUNCEMENT has been made by Raytheon Manufacturing Co. of the availablity of an 8-page 2-color brochure describing the company's newest product, a contribution to rural telephony. The new product is the Raytheon Model TCR-12 "Telelink" for use in microwave communications systems.

While the Raytheon "Telelink"

ACKER DRILL CO.: — In an expansion of its present facilities in Scranton, Pa., the Acker Drill Co., Inc., manufacturers of drilling equipment and accessories, recently completed a new addition to its plant. The new wing is of brick and steel construction and provides an additional manufacturing area of over 35,000 square feet of floor space. Equipped with the latest machine tools and equipment, it is expected that the new facilities will provide for the increased demand of Acker products including its new earth digger.

You Can't Fall
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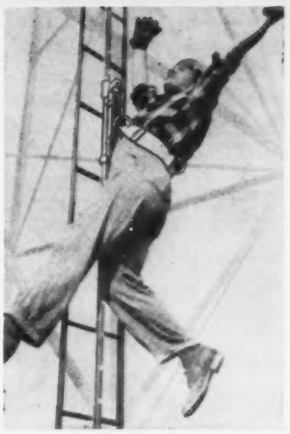

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will be used for the extension of rural telephone service, the new equipment will fulfill a need for microwave communications systems for pipelines, railroads, utilities, air lines, turnpike authorities and federal, city and state governments.

Copies of the brochure may be obtained by writing for literature No. DL-TL-912, Raytheon Manufacturing Co., Dept. 6130, 100 River St., Waltham 54, Mass.

C&D Batteries Opens New Modern Plant

C&D BATTERIES, INC., Conshohocken, Penna., held a two-day Open House on November 29th and 30th to mark the formal opening of its new plant.

On November 29, 1953, C&D was struck by a disastrous fire, which destroyed more than 75% of its plant. By hard work, and with the help of suppliers and local business people, C&D was back in limited production in three days and full production by Christmas.

Negative Impedance Repeater Available From Kellogg

A NEGATIVE IMPEDANCE repeater of the series type is now available to the Independent telephone industry from Kellogg Switchboard & Supply Co., Chicago, Ill. It is called the Kellogg Z-11 Voice Frequency Repeater.

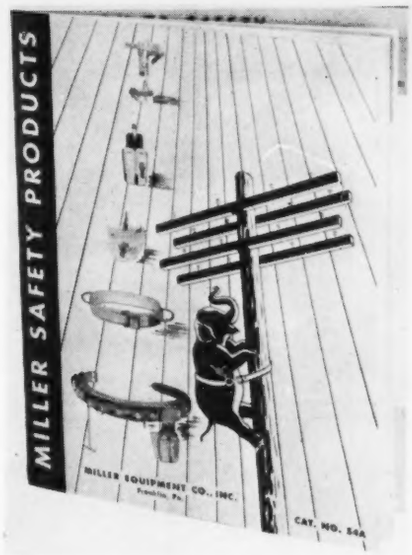
Shown for the first time at the recent U.S.I.T.A. Convention, the Z-11 is designed to improve transmission on new or existing facilities at a minimum cost. According to the manufacturer, the unit's low initial cost, as well as operating cost, makes it an economical addition to existing facilities, and when included in new construction it permits smaller sized cable to be used without loss of transmission efficiency.

When the Z-11 is inserted in a telephone line the effect is to cancel a portion of the positive impedance inherent in the line. This permits delivery of a higher signal level at the end of the line for a given signal input.

The Kellogg Z-11 Voice Frequency Repeater is provided with adjustable controls for varying repeater gain and equalization. These controls facilitate the adjustment of repeater gain to satisfy the requirements of a particular application and also simplify the installation of the repeater by allowing greater latitude in adjustment of the impedance network.

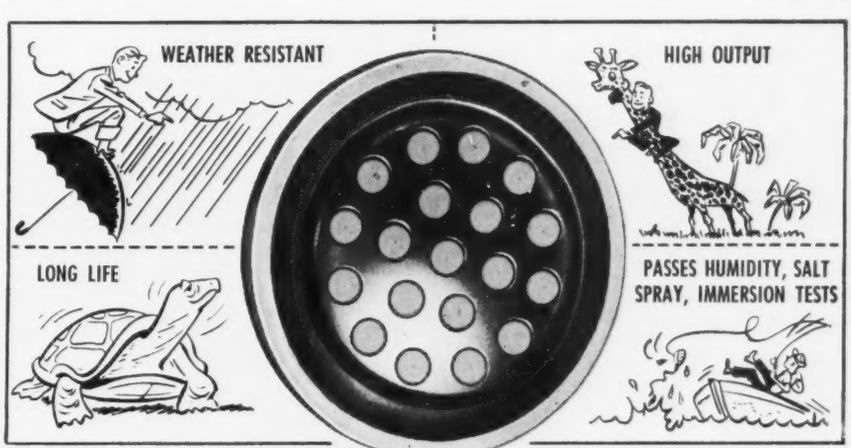
The gain of the Kellogg Z-11 Voice Frequency Repeater depends upon the extent to which the negative impedance generated by the repeater stimulates the impedance of the lines to which it is connected. One of the elements restricting gain of the repeater is the presence of reflections on the line due to impedance irregularities. Under optimum conditions

Please Turn To Page 104



New 36-page catalog describing Miller Safety Products is offered free to industry members by Miller Equipment Co., Inc., Franklin, Pa.

EDWARD E. NOLAN has been appointed an engineering representative in the sales engineering department of the Lenkurt Electric Co., manufacturers of multichannel telephone and microwave equipment.



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ADVERTISING, Directories — *General Telephone Directory Co., 604 Pine Ave., Long Beach, Calif., and 1800 Busse Highway, Des Plaines, Ill.*—[ADV. 2]

BELTS — CLIMBERS — COMPLETE LINEMEN'S EQUIPMENT, *W. M. Bashlin Co., Bashlin Bldg., Grove City 1, Pa.*—[ADV. 3]

BELTS — CLIMBERS — PLIERS — SAFETY STRAPS — CONSTRUCTION TOOLS. *Klein & Sons, Mathias. 3200 Belmont Ave., Chicago 18, Ill.*—[ADV. 4]

BOOTHS—Acoustic Telephone — *Sherron Metallic Corp., 1202 Flushing Ave., Brooklyn 6, N. Y.*—[ADV. 5]

BRUSH & WEED KILLERS — *Thompson manufactures many types of brush and weed killers. Write for helpful information on specific problems. Thompson Chemicals Corp., St. Louis 3, Mo.*—[ADV. 6]

CABLE, All Plastic, *Aerial, Duct, Direct Burial, PBX, Switchboard. — The Ansonia Wire & Cable Co., Ansonia, Conn.*—[ADV. 7]

CLIP — Modern Lineman's Needle Clip. Free catalog #AA588 and free samples from: *Mueller Electric Co., 1588AA E. 31st St., Cleveland 14, Ohio.*—[ADV. 8]

CORDS, Switchboard (with or without plugs), Instrument (retractable and regular) and Operators — *Commercial Cord & Supply Co., Inc., 26 Main St., Clifton Springs, N. Y.*—[ADV. 9]

CORDS, Switchboard & Telephone — *Runzel Cord & Wire Co., 4727-31 Montrose Ave., Chicago 41, Ill.*—[ADV. 10]

ELECTRIC HOT WATER HEATERS. *Thermostatically controlled for any hot water heater. Vulcan Electric Co., Danvers 17, Mass.*—[ADV. 11]

FURNACES — For quickly and economically melting lead and paraffin — *Mutual Liquid Gas Equipment Co., Inc., 3600 W. Imperial Highway, Los Angeles, Calif.*—[ADV. 12]

INSULATORS, Porcelain — *Porcelain Products Inc., Box 300, indlay, Ohio.*—[ADV. 13]

LIGHTWEIGHT PULLERS — *Coffing Hoist Compan, 800 Walters St., Danville 5, Ill.* — [ADV. 14]

PIPE PUSHERS — *Giant Manufacturing Co., South 6th St., at 12th Ave., Council Bluffs, Iowa.*—[ADV. 15]

POLE HOLE DIGGERS — *For derrick mounted trucks. Tele-E-Lect Products, Inc., 9613 Minnetonka Blvd., Minneapolis 16, Minn.* —[ADV. 16]

POLES, Southrern Yellow Pine — *Colfax Lumber & Creosoting Co., Inc., P. O. Box 23, Pineville, La.*—[ADV. 17]

POLES, Southern Yellow Pine — *Taylor Colquitt Company, 290 E. Main St., Spartanburgh, S. C.*—[ADV. 18]

POLES, Southern Yellow Pine — *Texas Creosoting Co., Orange, Texas.*—[ADV. 19]

PROTECTIVE EQUIPMENT — *Reliable Electric Company, 3145 Carroll Avenue, Chicago 12, Ill.*—[ADV. 20]

REBUILT TELEPHONE & SWITCHBOARDS — *Telephone Repair & Supply Company, 1760 Lune Avenue, Chicago 2, Ill.*—[ADV. 21]

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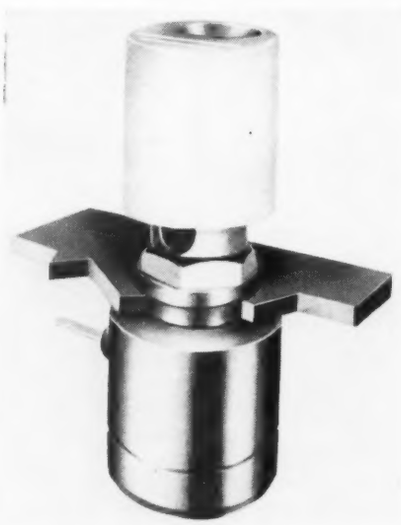
WIRE, Insulated Drop and Bronze or Copperweld — *Acorn Insulated Wire Co., Inc., 36 Freeman St., Pawtucket, R. I.*—[ADV. 24]

WIRE, Telephone, *for all inside and outside uses — Whitney Blake Co., New Haven, Conn.*—[ADV. 25]

NEW PRODUCTS' SHOWCASE



PROTECTOR BINDING POST: — A. U. S. Letter Patent #2,688,105 has been granted to W. C. Hasselhorn, assignor to Cook Electric Co., covering the invention of a protector Binding Post.

This device provides lightning, high voltage and power cross protection on incoming lines to portable field telephone or test equipment with minimum space required for the protection feature. Replacement discharger elements which are similar to the Minigap units permit easy replacement and low cost maintenance. The discharger is grounded to the metal panel race and no ground strip or ground wires are required.

The 'Gator Post is equipped with stellite jaws which increase their grip as increased tension is applied to the terminated wire. This binding post features a welded assembly, is self clearing, and the molded nylon cap prevents accidental grounding or short circuiting. —For complete data, Check New Product 680.

PASTE SOLDER: — Alpha Metals, Inc., 56 Water St., Jersey City 4, N. J., has a new solder paste for sweat soldering or tinning. The paste consists of a blend of 50/50 powdered solder and an active flux. For most applications cleaning is unnecessary. The paste is applied with brush or cloth, the parts fitted together, and heat applied. After heating the small amount of flux residue can be removed by wiping the joint with a damp cloth.

The joints obtained by this method are as strong as those obtained by the conventional methods using a separate flux and solid wire. The fact that flux and solder completely cover the whole surface of the metals being joined insures a complete coverage and eliminates untinned spots.

The technique is easily mastered. The time required for making a joint is considerably reduced because flux and solder are applied in one operation instead of separately. The number of joints which can be made from one pound of Alpha's "SweTite" PASTE SOLDER far exceeds the number which can be made from solid wire and flux of the same cost.

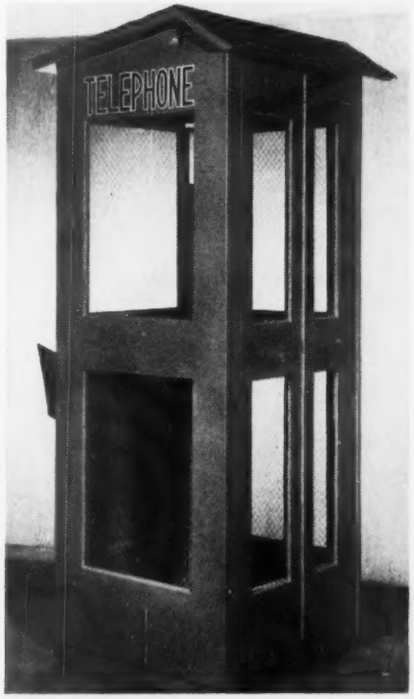
Supplied in ½ pound and 1 pound cans with a FREE BRUSH for each can. For complete data, Check New Product 681.

"HANDI-BOOTH": — The Suttle Equipment Co., Lawrenceville, Ill., has announced a new design in an inexpensive outdoor booth which requires no high-cost installation. Supplied with a 6½' steel mounting post which can be set in a post-hole filled with concrete the Suttle "Handi-Booth" can be set on a curb for drive-up service.

When the receiver is off the hook the door is held up by an electromagnet. A 15-second time switch holds it up, also, allowing time for the patron to remove and replace receiver.

Waterproof construction keeps bugs, dust

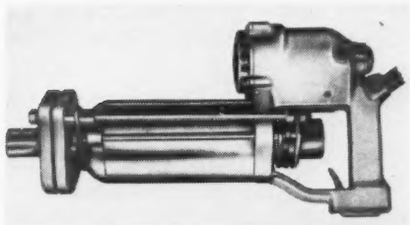
and dirt out. Light through clear glass makes it stand out in the dark. The booth is manufactured with aluminum frame, safety glass, and aluminum roof — everything rust-proof. All joints are watertight. It comes completely equipped with light, automatic door closer, and enameled steel mounting post. Wiring enters through the base. Mounting holes in post for arresters. Size 12"x18"x30". Shipping weight, 86 pounds. — For complete data write Suttle Equipment Co., Lawrenceville, Ill., or Check New Product 682.



OUTDOOR BOOTH: — At the recent U.S.I.T.A. convention held in Chicago, Churchill Cabinet Co., 2119 Churchill St., Chicago 47, Ill., introduced a new outdoor telephone booth.

The booth, known as the #500 Series, has as a special feature a photo-electronic nite-lighter that turns the light on at dusk and off at dawn. Other than the light the booth is of the same construction as the #300 booth introduced last year and which is still in the Churchill line. It is of the same California Redwood, has wire-reinforced plate glass windows, oak floor, and folding doors.

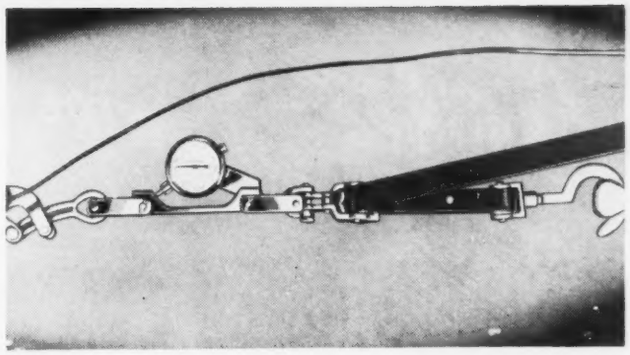
Churchill's #100 indoor telephone booth also has new features: — a new rigidized metal lining in a pleasing color, new ventilating system that changes the air in the booth completely every three minutes, and a new lighting fixture.—For complete data, Check New Product 683.



HAMMER DRILLS: — The Syntron Company, 927 Lexington Ave., Homer City, Pa., has brought out an addition to its line of Electromagnetic Hammer Drills — the Model 27-RO with a maximum drilling capacity of 3" diameter holes.

A change in the construction, which has greatly increased the power, together with the use of a core drill makes possible this maximum 3" diameter hole drilling. Until the development of this new hammer, the maximum hole drilling capacity was limited to 2" diameter holes.

This new Electromagnetic Hammer Drill, like other models in the line, is designed to speed up quantity hole drilling in concrete and masonry. In addition to the terrific power required for such work, the hammer drill features automatic rotation of the drill bit. This automatic rotation is accomplished by a simple rubber rachet mechanism, which utilizes the recoil of each blow of the hammer piston to slightly turn the bit, thus the 3600 blows per minute (from 60 cycle current) of the hammer piston rotates the bit with suitable torque at the right speed, eliminating the manual quarter turning of a drill bit and reducing operator fatigue. Illustrated literature is available on request.—Check New Product 684.



Dillon Model "B" Dynamometer is available for prompt shipment.

Dillon Model "B" Dynamometer is 6" long, 3¼" tall, 1" thick.

DYNAMOMETER: — W. C. Dillon & Co., Inc., 14620 Keswick St., Van Nuys, Calif., has announced that its Model B. Dynamometer is available for prompt shipment. The Model B is designed especially for work in the telephone industry where the linemen require something extremely compact in size and light in weight. The unit is only 6" long by 3¼" tall by 1" thick. It weighs less than 1½ lbs. net. It can be easily held in the palm of one hand. The dial diameter is 2¼". Accuracy is within 1% of the indicated reading.

The Dillon Model B Dynamometer will be available in a 500-lb. capacity at $140.00, and in a 1000-lb. capacity at $150.00 This price includes the necessary attachment shackles and pins and a carrying case.—For complete data, write W. C. Dillon Co., Inc., 14620 Keswick St., Van Nuys, Calif., or Check New Product 685.

For complete information on the products and services described in this department send in the coupon which appears on this page. If you do not see a listing of the products and services that you are interested in, write BUYER'S GUIDE, 7720 N. Sheridan Road, Chicago 26, Ill. The information will be furnished quickly and without charge to telephone industry members.

SEND IN THIS COUPON FOR MORE INFORMATION

Telephone Engineer Publishing Corp.
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Please forward complete information on the following products and services described in the December, 1954 issue of TELEPHONE ENGINEER & MANAGEMENT (Check Information desired.)

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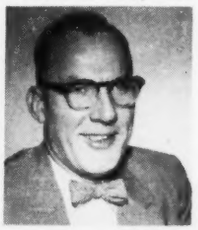
For Better Construction SAFER Maintenance

the gain of the repeater may be as high as 10 db but never more than ½ of the loss of the circuit in which it is connected.

George Viane Joins Cook Electric Co.

CHARLES H. BRUNELL, sales manager and vice president of Cook Electric Co., Chicago, has announced the appointment of George A. Viane as Detroit district representative with office at 3049 East Grand Blvd., Detroit 3, Mich. Mr. Viane formerly was sales manager of one of the oldest Detroit jobbers of automotive replacement parts and equipment. Previously he was service engineer for an engineering division of Ford Motor Co. and for the Ternstedt Instrument Division of General Motors. During the war he was production engineer with the Navy Bureau of Ships.



G. A. VIANE

Raytheon Names Wexler To New Position

APPOINTMENT OF William W. Wexler as advertising and sales promotion manager in the equipment sales division of Raytheon Manufacturing Co. has been announced by John F. Morten, marketing services manager. Mr. Wexler will be responsible for advertising and sales promotion for the industrial and component products groups, reporting to the marketing services manager.

William W. Wexler

Before joining the Waltham, Mass., electronics firm, he was with Murray Manufacturing Corp., Brooklyn, N. Y., where for the first three years he was responsible for its advertising and sales promotion, and for the past year, for their marketing research programs.

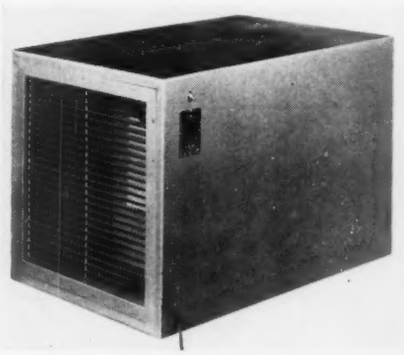
Mr. Wexler is a native of Stamford, Conn. He was graduated from New York University in 1950 with a BS degree in marketing. He had previously attended Parsons School of Design, where he studied commercial art. During World War II he served with the U. S. Army Air Corps as an aviation cadet.

Suttle Announces Two New Products

THE SUTTLE Equipment Co., Lawrenceville, Ill., recently announced production of the Suttle "Dustsorb," and the Suttle "Atmodry."

According to the manufacturer the "Dustsorb" thoroughly cleans air in unattended automatic exchanges and filters out dust, smoke film, vapors, and other impurities that tarnish or impair switching contacts.

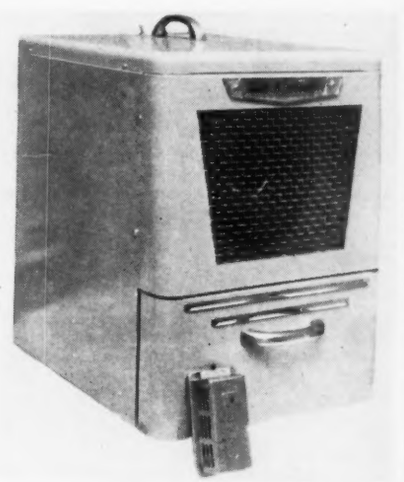
The "Dustsorb" draws the air in a dial exchange room continuously through a 5-ply fibre filter. 94%



The Suttle "Dustsorb" filters out dust, smoke, film, vapors and other impurities that tarnish or impair switching contacts. According to the manufacturer, the "Dustsorb" removes 94% of the impurities with each pass of air through the plenum chambers.

of the impurities in the air are removed with each pass of the air thru the plenum chambers. Microscopic particles are removed from the circulating air before they settle on the switching contacts.

The manufacturer claims that the dirt caught on the white filters proves the effectiveness of the unit, and explains why less faults and troubles are experienced in the exchange that is cleaned with a "Dustsorb" installation.



The "Atmodry" dehumidifier is ideal for the average single-room unattended dial exchange.

In introducing the Suttle "Atmodry" the manufacturer stated that the new product is a "highly efficient dehumidifier ideal for the average single-room unattended dial exchange." Used with the Minneapolis-Honeywell automatic control, it keeps the air dry within specified limits at all times, prevents corrosion, tarnish, or mildew on contacts through the years, and eliminates a principal cause of operating failures in unattended exchanges, especially in high humidity areas.

The unit operates on 110-volts and comes with a plug-in cord. A one-eighth horsepower Tecumseh unit operates whisper-quiet and on very little current. Rustproof container holds two gallons of water. The unit can be installed with a permanent drain pipe if desired.

The Suttle Company claims that the "Atmodry" requires practically no service since it is permanently oiled and hermetically sealed.

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fastest service

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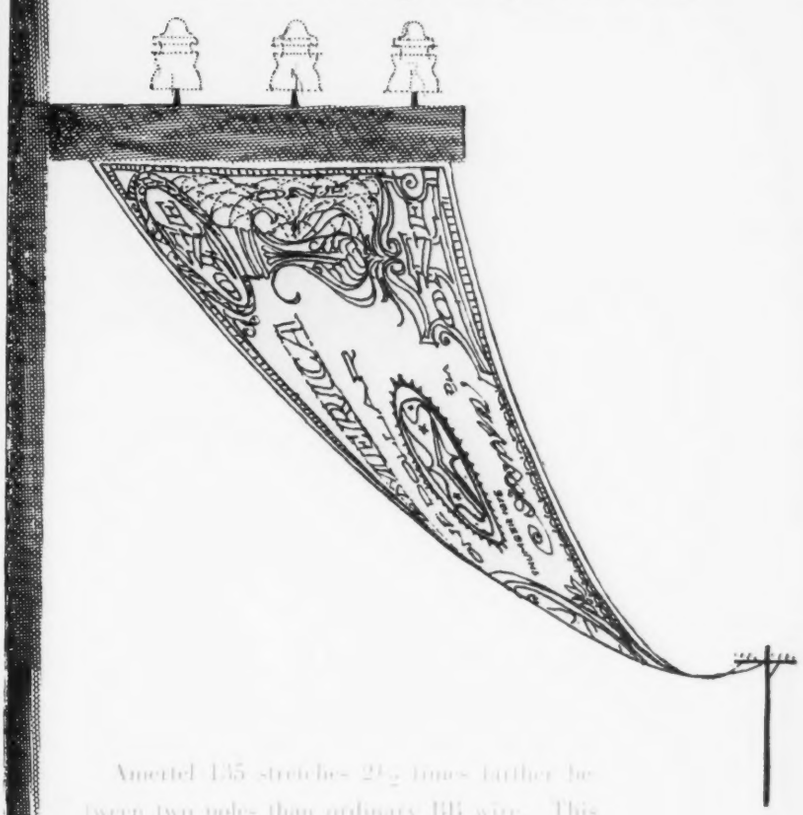
stretches your Dollars too



Amertel 135 stretches 2½ times farther between two poles than ordinary BB wire. This means over a 50% cut in poles, hardware, installation and maintenance costs. And transmission quality is excellent with low electrical resistance. Call or write us now for prices.

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HELP WANTED:—Plant Superintendent needed for Class A telephone company in midwest operating more than 20,000 stations. Company desires a young man with outside plant and central office experience who is capable of directing the Company's plant operations. Salary open. Submit resume of experience, education and references. Write Box 8928, Telephone Engineer Publishing Corp., 7720 Sheridan Rd., Chicago 26, Ill.

HELP WANTED: — Manager for REA Cooperative located in Eastern Utah, Uintah Basin Area. Been in complete operation for approximately 18 months. System includes six unattended North dial units, 420 miles of line, 800 subscribers with a potential of 1150. Technical, plant and commercial knowledge and experience desired. Permanent position carrying substantial opportunity for right person. Write Uintah Basin Telephone Association, Roosevelt, Utah for application blank. Must be received at this office by January 15, 1955.

HELP WANTED: — Chief Operator. Permanent position, must be thoroughly experienced in all phases of manual and toll dial operation. Must have ability to select new employes and to supervise training. Excellent working conditions, salary commensurate with experience. Class A Telephone Company. Write Box No. 8920, Telephone Engineer Publishing Corp., 7720 Sheridan Road, Chicago, Ill.

HELP WANTED: — Manager for rapidly expanding cooperative rural telephone system serving approximately 900 subscribers in North Central South Dakota. Must have administrative ability to achieve and maintain efficient operations and develop sound expansion programs. Ability to hire, train and direct personnel in all phases of telephone operations. Technical plant and commercial knowledge and experience desired. Permanent business carrying substantial opportunity for qualified person. Replies confidential. Write to Henry P. Ochsner, Secretary, Valley Telephone Cooperative Assoc., Inc., Herreid, South Dakota.

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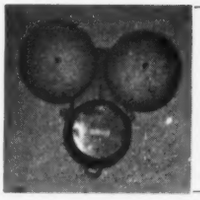
WANTED TO BUY

WANTED TO BUY: — Telephone company with at least 1000 stations. Write Box No. 8927, Telephone Engineer Publishing Corp., 7720 Sheridan Rd., Chicago 26, Ill.

FOR SALE



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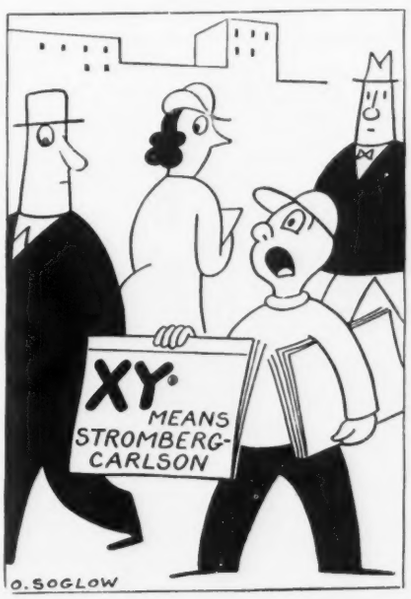

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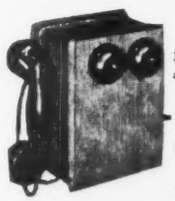

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Lineman's Wrench #3146 for 5/8" Hardware @ $18.00 per dozen.
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39th Consecutive Dividend

The Board of Directors declared a quarterly dividend of 27½ cents per share on the outstanding common capital stock of the company, payable on or before December 31, 1954, to stockholders of record at the close of business December 10, 1954.

Abilene, Kas. **ALDEN L. HART,**
Dec. 2, 1954 **President.**

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. . . Derrick and Digger Unit

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Write for Bulletin 325.

★ **Answers the need for a two man construction crew**

★ **Sets poles up to 35'; takes augers 8" to 20" diameter**

★ **Packaged unit for installation by your local mechanic**

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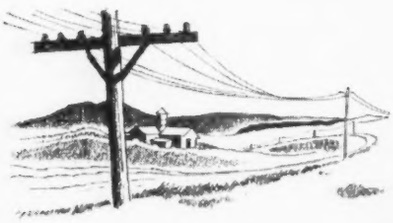

You're assured of no rocking or wobbling on pins with Armstrong Glass Insulators. Every one is hand gauged as it comes off the production line for accuracy of threads and pinhole diameter. For details, write Armstrong Cork Co., Glass and Closure Division, 295 Fifth Avenue, New York 16, N. Y.

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Technical Papers Available on Automatic Toll Operation

IN RECOGNITION of the fast growing importance of nationwide customer toll dialing and automatic toll ticketing, Automatic Electric Co. has published a collection of technical papers covering a broad range of topics in which telephone companies are vitally interested.

Each of the papers in the collection is concerned with a specific field of development or operating function, and all have been preparel by engineers or operating executives who have been actively associated with the significant developments and applications in these fields.

The papers are printed in brochure form and may be obtained free of charge by writing Automatic Electric Co., 1033 W. Van Buren (Dept. TEM), Chicago 7, Ill.

Burton Heads New York Office of Cook Electric Co.

CHARLES H. BRUNELL, sales manager vice president of Cook Electric Co., Chicago 14, Ill., has announced the appointment of Charles Burton as manager of the Eastern Sales Division. Its New York office is at 380 Madison Avenue, New York 17, N. Y. Mr. Burton comes to Cook Electric Co. from Federal Enterprises, Inc., Chicago, Ill., where he was assistant to the president. He is also consultant to the Federal Civil Defense Administration on air raid warning systems on prime target areas in the United States as well as at air stations, naval bases, and similar installations.

CHAS. BURTON

Illinois Company Wins Holtzer-Cabot Reward

THE HOLTZER-CABOT Divisions of the National Pneumatic Co., Inc., Boston, Mass., have announced the winner of the company's $100 reward for information concerning the oldest Holtzer-Cabot motor still in operation in the telephone industry. The recipient is W. E. Matthews, manager of the Augusta Mutual Telephone Co., Augusta, Ill.

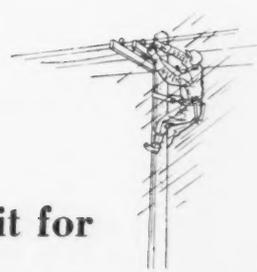
The Augusta company owns a Holtzer-Cabot motor-generator set built in 1899, a belt-driven unit which is still in good operating condition.

STROMBERG-CARLSON®

transmitter

Published by the makers of Famous XY® Equipment

VOL. 3, NO. 9 DECEMBER, 1954



"Let's wait for Daddy to come home."

Many of the joys of Christmas are taken for granted; the bounty of the harvest, the productive genius of America, the right to talk freely to family and friends. The magic of the telephone unites us all — makes everyone a neighbor on Christmas.

The boy or girl in the telephone family learns early the cherished tradition of this dedicated fraternity: "The call must go through." Because each generation of telephone parents has passed the great tradition on to the next, it has become stronger and more binding until it is a part of the precious American heritage.

To the faithful telephone Dad, toiling to keep the lines open this Christmas day: your family will be waiting for you; proud of you, for the joy you have brought to others.

Photo by Harold Webster
Stromberg-Carlson Company

STROMBERG-CARLSON transmitter

Walton, N.Y. Has 1800 Terminal XY Dial System

Delaware Telephone Company became a 100% dial system on September 26, 1954, as it cut over its major exchange at Walton, N. Y. to XY dial operation. The Walton exchange has 1800 terminals.

The cutover was a major triumph for Del-Tel's president, Mrs. Cordelia Haverly, who has operated the company since the death of her husband in 1938. Frederick Haverly had founded the company in 1923, and had worked steadily toward modernization, passing along his enthusiasm to his wife.

Jack W. Haverly, manager, checks XY Dial system.

Mrs. Cordelia Haverly, president. Special 16-page section of local newspaper saluted Delaware Telephone Company's cutover.

Prior to 1923, Walton and its environs were served by two small companies, named the Walton Peoples Telephone Company and the Downsville Telephone Company. These two were consolidated to form the Delaware Telephone Company, so named because of its location in Delaware County. Part of the new company's program was construction of a new building in 1932, so well planned that it was possible to remodel the building to meet the needs of a modern dial system, instead of constructing a new one. As it stands today, Del-Tel's building is completely fireproof, and has additional space for future expansion of the XY Dial System 30 or 40 years from now.

Also cut into operation at Walton was a new 5-position Stromberg-Carlson toll board, providing operator intertoll dialing.

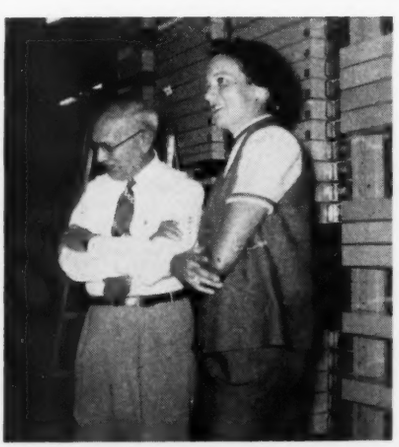
Financing of the Del-Tel project was handled through a number of methods. Funds set aside during World War II, a local bond issue, short-term bank loans, a long-term bond issue, and additional capital provided by stockholders all contributed to the campaign to raise the necessary capital. The cooperation of local bond purchasers and stockholders is indicative of the popularity and reputation of the company.

Officers of the company are Mrs. Cordelia Haverly, president; John B. Cantwell, vice president; J. C. Burrhus, secretary-treasurer; Jack W. Haverly, manager; Douglas A. Haverly, wire chief, and Mrs. Frank Sherwood, chief operator.

It's a Family Team at Statesboro, Georgia

Nobody worries about titles at the Statesboro Telephone Company. Mr. J. L. Mathews, spry at 80, contributes seasoned experience; Charley Joe Mathews carries the chief load of active management; each of the ladies has a leading role. All share equally the pride in their 1100-line XY Dial exchange, cut over early this Fall. Statesboro salutes the Mathews.

From left, Mr. and Mrs. J. L. Mathews, Mr. and Mrs. Charley Joe Mathews, Mrs. C. B. Mathews (mother of Charley Joe) — all of Statesboro, Georgia.



Relaxing after the cutover: Mrs. Charley Joe Mathews and R. O. Hoffman, Chief Sales Engineer for Stromberg-Carlson.

STROMBERG-CARLSON transmitter

Candid Camera Catches Chicago Conventioneers

This entire issue could well be filled with pictures and jottings from the National Convention. In numbers, interest and enthusiasm, the 1954 U.S.I.T.A. meeting exceeded previous gatherings. Here are a few selections from among the photos taken in the Stromberg-Carlson exhibit rooms.

John Voss, Stromberg-Carlson General Manager with Otto Wettstein Jr., of Orlando, Florida.

John Evans (right) of Patterson, Calif., has scored "Touche" with Howard Phelps, Stromberg-Carlson.

Miss Hill, of Illinois Bell Co., places long distance calls at the pleasure of Mr. Anderson (left) of the Iowa-Illinois Company and (right) Mr. Anders of the Peninsular Telephone Company. Peter Van DeLoo (center), Stromberg-Carlson engineer, assisted in the demonstrations.

Mr. and Mrs. James Bellamy, Knoxville, Iowa, visit with T. C. Thompson, Stromberg-Carlson.

Notebook jottings

First of all, Thanks — For the many who took time to say nice things about the Stromberg-Carlson exhibit. For those who don't already know, lion-sized credit goes to John Cornelius and Frederic Haupt who master-planned the show — To our friends of the "Telephone Engineer" who moved their room so that we could expand our display — To The Committee for the advance planning which speeded up registration, ticket selling and other details.

Next, Congratulations — To our good neighbor Donald Campbell on his elevation to the U.S.I.T.A. President's chair — And to another good friend across the country, Ray Dalton, who now heads the Pioneers.

Let's Tip our Hat — To Lois Kehoe, Arkansas Secretary, who has kindly put our request for Human Interest stories in her monthly magazine — To William Surgi of New Orleans who "demonstrated" his portable generator by furnishing temporary lighting to flood-crippled Union Station — To the several wire chiefs, graduates of the XY Training School, who quietly do such a good job of preventative maintenance that, to quote one of them "the only worry is that I don't have enough to do."

Space Gone, Notebook Still Full — Let's continue another time.

Mr. J. Johnson (left) Seymour, Indiana, learns about the new S12-0 Carrier from John Cornelius, Stromberg-Carlson.

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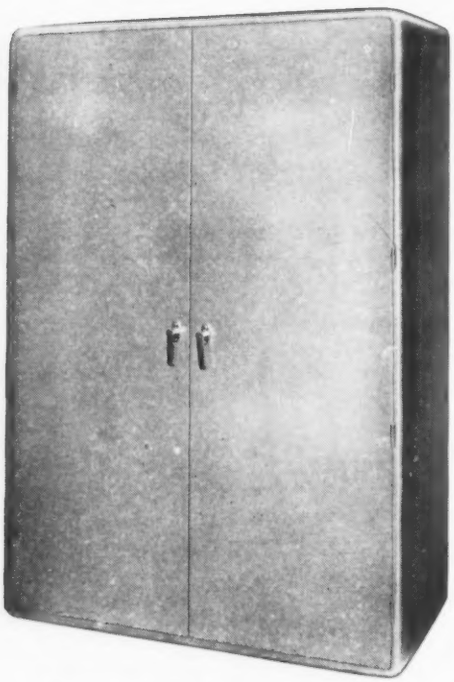
Compact Office-Type Cabinet for 40-Line XY Dial PBX

Simplified Finder-Connector System for Medium-size Office



Equipment for 40-line XY Dial PBX is housed in this attractive cabinet, with attractive neutral gray finish.

Stromberg-Carlson has produced a simplified dial PBX System designed to incorporate those features in greatest demand by Independent Telephone Companies for installation in the typical offices found in their service areas.

This is a single party finder-connector system having an ultimate capacity of 40 lines (10 are added for trunk circuits) with one level (9) for combination central office trunks and one level (0) for information trunks. Provisions are made for an ultimate of 12 finder-connectors, 8 combination central office trunks, 2 information trunks.

Physical Description

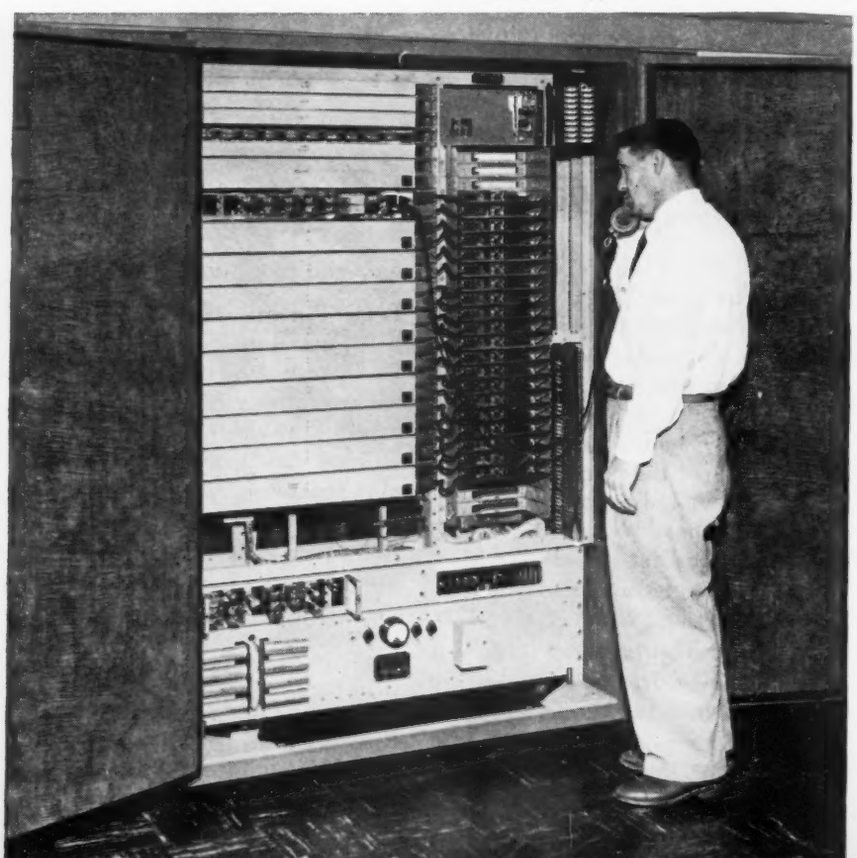
All equipment is shelf-mounted on a single bay frame whose overall dimensions are approximately 6′-4″ high, 4′-1″ wide, and 2′-0″ deep.

There are 40 local line circuits, 10 trunk line circuits, a single allotter and 12 finder-connectors jack-mounted on the front of the bay. Also, directly below this shelf is a Power Panel and Battery Eliminator. Eight (8) combination trunks and two information trunks are jack-mounted on the rear. A terminal block is provided for direct connection of station lines and central office trunks. Connector terminals are also terminated on a block for easy identification and jumpering.

The entire unit is factory-wired so that the only connections required are the house cable leads and A.C. power leads.

The unit is mounted in a metal cabinet with full opening doors front and rear. The doors are provided with locks. The unit is mounted on casters for ease in handling. Floor hold-downs are located inside the cabinet to prevent unauthorized movement of the equipment. The cabinet is finished in office gray, attractively trimmed.

The cabinet is acoustically treated to minimize normal equipment noise, resulting in noise level less than a standard typewriter.



Interior of cabinet is acoustically insulated to reduce noise level to less than the sound of a standard typewriter.

Attendant's Cabinet

A cordless type attendant's turret is provided. It is arranged and equipped for 8 central office trunks — only the first five are equipped for night switching — and 2 information trunks. Incoming calls from the central office are answered by the attendant and extended to a desired extension by dialing the assigned number of the extension. Information calls cannot be extended by the attendant. Night switching keys are provided for connecting the central office trunks to predetermined extensions when the attendant is not on duty. An audible night and fuse alarm are provided in this cabinet with keys to cut either off. An attendant's dial line is provided.

A gray finish handset type telephone with dial is normally furnished for attendant's use. Provision is

STROMBERG-CARLSON transmitter

Modern low lines, attractive gray crinkle finish, give eye appeal to attendant's cabinet.

made for mounting a jack into which can be plugged a W.E. type operator's headset. The dial on the telephone would still be used for completing calls.

The turret is approximately 6" high, 14½" wide, and 14½" deep. It has an inclined keyboard much the same in appearance as an adding machine. Office gray finish, attractively trimmed.

Capacity

Local Lines are wired for a maximum of 40 (10 extra lines are furnished for trunk circuits).

Trunks are wired for a maximum of 8 combination (C-O) trunks (9 lev.). Each combination trunk requires a line circuit. These line circuits are provided in addition to the local line circuits. There are also 2 information trunks (O level). Line circuits are not used with these trunks.

Connecting Links — Wired for a maximum of 12.

Features

Single-party Service.

Restricted Service. This feature is provided on a per line basis by line marking (optional wiring on the line circuit at the terminal block). Marked lines are blocked from calling the central office trunks. Calls attempted to these trunks from restricted lines will receive busy tone.

Directory Numbers. Two-digit numbers for stations, and a single-digit for trunks (9 for C-O trunks and O for information).

Call Distribution. Calls are distributed over the finder-connector links by a single rotary switch-type allotter circuit.

Night Trunk Connections. Each central office trunk to be used for night service will be extended to predetermined extension at night by operation of a night switching key on the attendant's cabinet.

Power. 48-volt D.C. power is supplied from a 6-ampere battery eliminator. Ringing power is supplied by a 20-cycle Sub-Cycle. Tones are supplied by a static generator. Both D.C. and A.C. power equipment are mounted within the switchboard cabinet.

Emergency Operation. In the event of an A.C. power failure, emergency service to central office can be maintained by switching to the night trunk connection. Provision is made to mount a 45-volt dry battery which is switched by a change of source relay to operate the relays of the trunk circuits. This will provide service on the lines normally used for night answering. No local service during emergency.

Other general features are supplied as follows: Dial Tone, Busy Tone, Machine Ringing (1 second ring, 2 seconds silent), Immediate Ring Trip, and Ringback Tone.

Operating Range

Local Extensions. Loop resistance is 1200 ohms maximum including the instrument. Leakage resistance is 15,000 ohms minimum.

Central Office Trunks. Loop resistance and leakage resistance is dependent upon the supervisory range of the central office equipment.

Special Features

Code Call. Connector circuits are arranged for operation with code call equipment. Code call equipment, when used, can be mounted on the switchboard proper. An applique cable and mounting details must be ordered separately. Two of the connector terminals for local service will then be used for code call equipment.

Executive Right-of-Way. This feature is not included in the standard unit, but can be supplied as a special item. When ordered, it will be supplied by a special connector circuit directly associated with the executive right-of-way line. This special connector will mount in place of one of the regular finder-connector links, reducing the link capacity accordingly.

Terminal block is easily reached through removable side panel in cabinet.

STROMBERG-CARLSON *transmitter*

Chicago Office Salutes Some Recent XY Dial System Installations

Fanning out in all directions from the Chicago branch headquarters, Jim Pfaender and his able sales force have planted the "XY" flag in some 200 locations. Representative of some recent conversions are the companies whose dial offices are shown on these pages.

Walter Wermerskirchen, right, and V. C. Burchett, Stromberg-Carlson, in Tolstoy XY equipment room, during cutover ceremony.

South Dakota's First REA Financed System is XY Dial Telephone Network

South Dakota's Public Utilities Commissioner Chris A. Merkle "pulled the strips" to complete the switch to dial service in the first R.E.A. financed conversion in this state. The three adjacent towns of Tolstoy, Hoven and Onaka in the central part of the state all have similar XY Dial exchanges and form one large free service network.

Independent Telephone Incorporated, with home office in Aberdeen, So. Dakota, is the operating company which has planned, built and now cut over this fine modern system. At the same time the company has brought XY dial telephone service to Rosholt, 120 miles to the northeast.

For Walter Wermerskirchen, president and general manager, the successful completion of the program to date has fulfilled a long-time ambition, for many of the good people in this area have, up to this time, had no telephone at all. Only with the savings made possible with an XY Dial System was it economically feasible to extend service to sparsely settled rural areas and relieve congestion on the town lines.

Mr. Wermerskirchen will be ably assisted by Jim Splettstoesser, local manager of I.T.I. for the Hoven-Tolstoy area, and Byron Seegal. Their good work, and that of the Stromberg-Carlson installation team, was really tested on the first day of Hoven dial service, when 5000 calls went through the dial equipment.

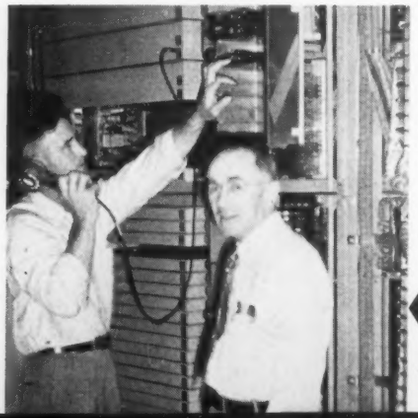
The townspeople, enthusiastic as they traded crank-turning for dial spinning, extended their appreciation to Mrs. Miles for her years of friendly and faithful service as operator.

Chris Merkle (foreground) public utilities commissioner with (left to right) Fred Harper, vice president, Walter Wermerskirchen, president and general manager and Ed Beiber, director of Independent Telephone, Inc.

Pine Island Telephone Company Puts in Second XY Dial Exchange at Oronoco, Minn.

James and Dennis Keane welcomed your editor to Pine Island, Minnesota, a little over a year ago when on the "Postman's Holiday." Here the photo at left was taken, with Mr. Keane making no attempt to conceal his pride in his new XY Dial System, then only a few months old.

As a result of their good experience at Pine Island, the Keanes have just completed the conversion of their second XY dial office, at nearby Oronoco. This unites over a thousand subscribers into one free service unit, to the mutual benefit of both towns.

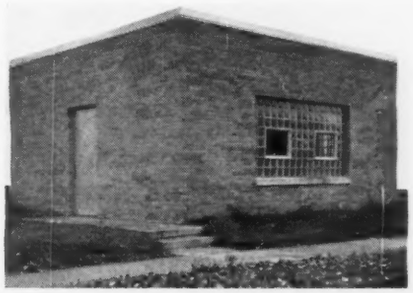


James Keane, right, of Pine Island, Minnesota, has extended XY dial to Oronoco.

STROMBERG-CARLSON transmitter

XY Praises Sung at Phillips, Wisconsin

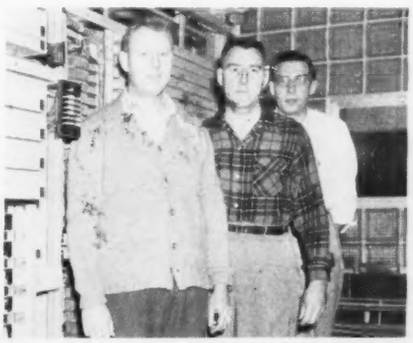
Karl and Bob Mess are the proud owners of a new XY dial office, carrying to completion the program started with their father, the late Karl Mess, Sr. They are also very active in SPEBSQSA; their Barbershop Quartette — the Bonded Blends — has appeared all over the state and entertained the Wisconsin Locally Owned Telephone Group at conventions for the last four years.



XY Dial Exchange of the Price County Telephone Co. at Phillips, Wisc.

It will thus be natural for the Mess brothers to work up some new rhythmic harmonies based on the purring of XY Switches interspersed with off-beat accents in digit-dialing tempo at the next Wisconsin gathering.

The XY office, initially equipped with over 400 lines, follows naturally in a long association with Stromberg-Carlson. The replaced manual switchboard — a No. 106 Junior Multiple — was the first installation of this equipment in the Midwest.

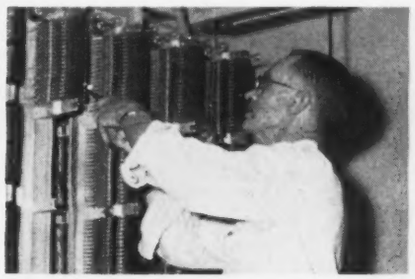


Karl and Bob Mess with (rear) J. M. Swartz, Stromberg-Carlson installation foreman.

A fine new building houses the dial equipment; future plans call for an addition in the same modern style for the commercial offices and garage.

Husband and Wife Manage Company at Prophetstown, Ill.

Mr. and Mrs. Ed Arians have given their 1000 customers the best in dial service — XY Dial. They also assisted in placing all the former operators in new employment. The city appreciates people like the Arians!



Ed Arians cuts his 450-line terminal per station XY exchange.

A busy banking and trading center for the rich agricultural land surrounding it, Prophetstown has had a steady growth which is expected to continue. The XY dial equipment was selected with this in mind.

"Let's put one over on Mama and listen in 'free' on her call!"

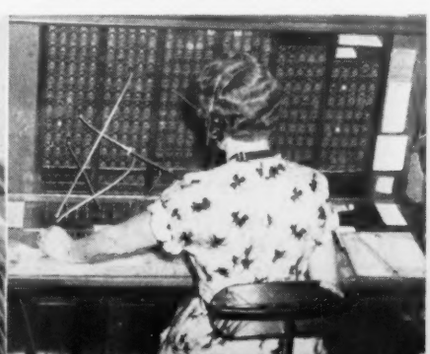
Mrs. Arians places first dial call to her daughter in Los Angeles.

Typical XY Dial Conversion of Progressive Iowa-Illinois Telephone Company

The Iowa-Illinois Telephone Company — a subsidiary of General Waterworks — has an extensive XY Dial system program under way. Typical of these change-overs is that recently completed at Hedrick, Iowa. This was accomplished by complete duplication of the old magneto plant. Modernization is continuing throughout the whole service area.

A. W. Sanders, manager at Hedrick, Iowa, directs actual cut of this exchange.

Farewell, Operator, and a "Well Done!" as XY switches take over the job.



STROMBERG-CARLSON *transmitter*

Blueprint Department Brings Charm to New Look

Office area — Here orders are received, scheduled and checked before delivery.

Portion of work area where orders are processed. Camera and darkroom at rear.

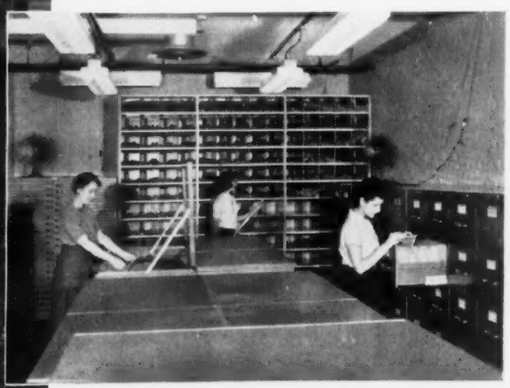
The Stromberg-Carlson New Look is at its best in that stronghold of feminity: the Blueprint Department. The combination of new machines, tables and filing cabinets in a brand new area built to specifications prepared by Lewis C. Freeman, Chief Draftsman, make the work pleasant as well as more efficient.

In an average month the blueprints made here would blanket *over* 8 *acres;* some 180,000. In addition a complete photostat service produces some 6500 pieces per month, and thousands of ditto forms help speed production and record keeping. Another time-saving function is the photographic production of cloth tracings for the drafting room.

Mrs. Elsa Merrell has been Supervisor of Reproduction for many years. She has seen the department grow from 14 to 36 people, and yet has been able to maintain the same close personal relationship with all of the girls which has kept group spirit and cooperation high.

Mary Ottalagana has been chief assistant to Mrs. Merrell for over 12 years. *Isabelle Graves* is in charge of the vault, *Marietta Johnson* follows through on checking orders, *Esther June Michelson* has charge of scheduling machines. The lone man, *Willis Arndt*, proudly wears a 25-year service pin and performs all the important functions which are too heavy or otherwise unsuited for the girls.

Two large and one medium size Osamatic printers of the very latest design turn out about 180,000 prints in average month.



New vault for storage of master tracings. Bank-type combination door assures safety.

Published by Stromberg-Carlson . . . makers of Famous XY Equipment

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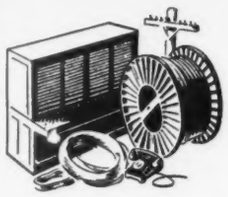

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The Back Of The Book

By JOHN G. REYNOLDS

"Phnf" To "Nuts"

TO EMBELLISH an old saw, "telephone people have more fun than anybody."

Every telephone man knows his share of humorous anecdotes, but few bother to chronicle them. One who does is Stanley M. Loyd of Western Electric, a toastmaster of long standing.

According to "Ohio Bell," he remembers well some years ago when first tests were being run at the Kearny, N. J., Works on the "speech inverter." A system for insuring privacy in radio conversations, the device translates the high voice tones to low and the low to high. As a result "telephone company" comes out ounding like "pleophonl krinkinopf."

Engineers testing the device were constantly interrupted by passing colleagues eager to hear the scrambled versions of their own names, until one enterprising fellow found the solution. He learned to speak the machine's "inverted language" and when bothered simply turned to the inverter and muttered something like "phnf."

The machine dutifully replied — "*Nuts.*"

Collector's Items

PEOPLE WHO collect odds and ends of string are usually considered harmlessly eccentric. However, when it's done on a large scale it really pays off. Take for example the "string saving" of Western Electric. This year by splicing together odds and ends of rubber-covered drop wire too short to be used any place else, they will save the Bell System half a million dollars. These reclaimed bits and pieces of drop wire make some 50,000 coils of usable wire at a net saving of $10 a coil.

"One For The Road"

THE SOUTHWESTERN BELL reports that highly enterprising Oklahoma extension salesmen have come up with unusual sales. For instance: house trailers. James Sharon, Tulsa station installer, sold an extension to a house trailer customer and the boss had hardly quit patting him on the back before Alton Matthews, Jr., another Tulsa station installer, reported an extension sale to a trailer customer at another trailer park. At Oklahoma City, plant man John French showed up for work one day wearing a handpainted tie with vertical lettering which read "*Need an Extension?*"

Answering Service

PUNCH, the famous English humor magazine, winds up a satire on the telephone company's admonition, "Don't say 'hullo'. Announce your identity," by helpfully supplying the following verse.

"*Don't say 'hullo'. Announce your identity.*
"*Indicate your species. Classify your entity.*
"*Tabulate your ancestors and name your lucky star;*
"*What is your religion and number of your car?*
"*Or to put it rather crudely, tell the fellow who you are.*
"But don't say 'Hullo'."

Long and Short of It

A FARMER was on his first visit to New York with his nephew. According to *Indiana Telephone News*, after they had checked into their hotel, the nephew went out and later telephoned his uncle from the lobby. No answer. Puzzled, he continued ringing. Then, struck by a sudden thought, he told the operator, "*Give him two short rings and a long one.*"

The uncle, who had never answered any call but his own party-line signal, promptly picked up the telephone.

Toll Booster!

IF YOU WANT to keep your toll bill down, you'll probably withhold this information from the kiddies, but it's a fact that Santa Claus is a Southwestern Bell Telephone Co. customer. This particular Santa doesn't live at the North Pole, though. He's a resident of Marshall, Mo., and his name really is Santa Claus.

Merry Christmas

THE ENERGY, skill and enterprise of telephone men and women has never been more evident than in this year, 1954. Throughout the U.S.A. praise of the tremendous telephone development daily taking place in our broad land is being sung loud and often.

Telephone men and women have accomplished since the war's end what seems in retrospect to have been an impossible task. To achieve the impossible has brought into play all of that goodwill, that loyal and faithful devotion to duty which we like to feel is part of the industry's stock-in-trade. We believe that it is this spirit which has obtained and retained for the telephone industry the respect and friendship of those who buy its service.

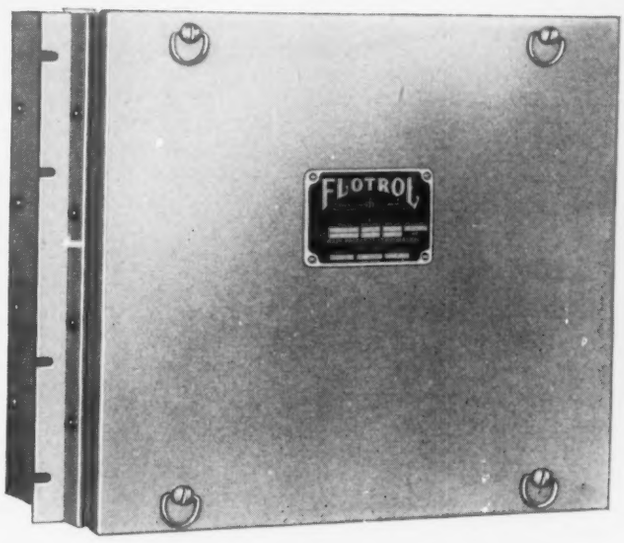
It has been the pleasant task of Telephone Engineer Publications to reflect the progress, to record the achievements of telephone people on and off the job. For the consideration and goodwill we have enjoyed from our industry members those of us responsible for TELEPHONE ENGINEER & MANAGEMENT and FORTNIGHTLY TELEPHONE ENGINEER are indeed grateful.

Our hope is that this Christmas will be for each one of you a happy time with loved ones and that the coming year will bring you joy.

FLOTROL

REGULATED VOLTAGE Carrier Supply Units

-WITH BUILT-IN STANDBY FOR DC OPERATION!



THE CS-1 AND CS-2 CARRIER SUPPLY UNITS are designed to supply 130 volt 0.5 ampere plate current for carrier or repeater operation. The units operate from 115 volt 60 cycle single phase power supply normally, and are arranged so that during periods of power interruption they automatically transfer to a built-in vibrator which operates from the exchange battery. The output voltage is regulated within ± 3%, with the unit compensating for variations in load and input voltage.

The same regulation is provided when operating from the battery even though the battery voltage may vary from 45 to 52 volts on the Model CS-1 or 22-25 volts on the Model CS-2.

The carrier supply units are housed in attractive steel cabinets finished light gray and can be mounted on the wall or in a 19 inch relay rack. Either model provides uninterrupted plate current during power failures.

Write for Bulletin 170

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電話書

ANCIENT CHINESE PROVERBS PROVIDE WESTERN MAN WITH A VAST TREASURY OF WISDOM

If the string is long, the kite flies high

Every civilization has re-discovered and re-phrased this adage. "A chain is as strong as its weakest link" is another more modern version of the same idea.

While all of us recognize these familiar truths, we sometimes forget them due to the apparent urgency of solving everyday problems. Applying this to your telephone directory, you can quickly recognize that your company will never realize the full measure of success unless your directory publishing procedure has proved that it can deliver most accurate, most attractive directories that yield maximum net profit.

Keeping this proverb in mind, think for a moment about your own directory publishing procedure. Are you absolutely certain that you get full coverage in your sales canvass? Are your compilation methods the most reliable? Is your proofreading adequate? Is your printing done most efficiently? If you cannot conscientiously answer yes to all of these questions, isn't it logical to conclude that your company is not getting full benefit from its telephone directory?

Through our Complete Directory Service Plan we have built an outstanding reputation for our ability to turn out directories which are hard working, money making ambassadors of good will for the telephone companies which we serve.

Invite our experienced representative to explain this plan to you in full detail.

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